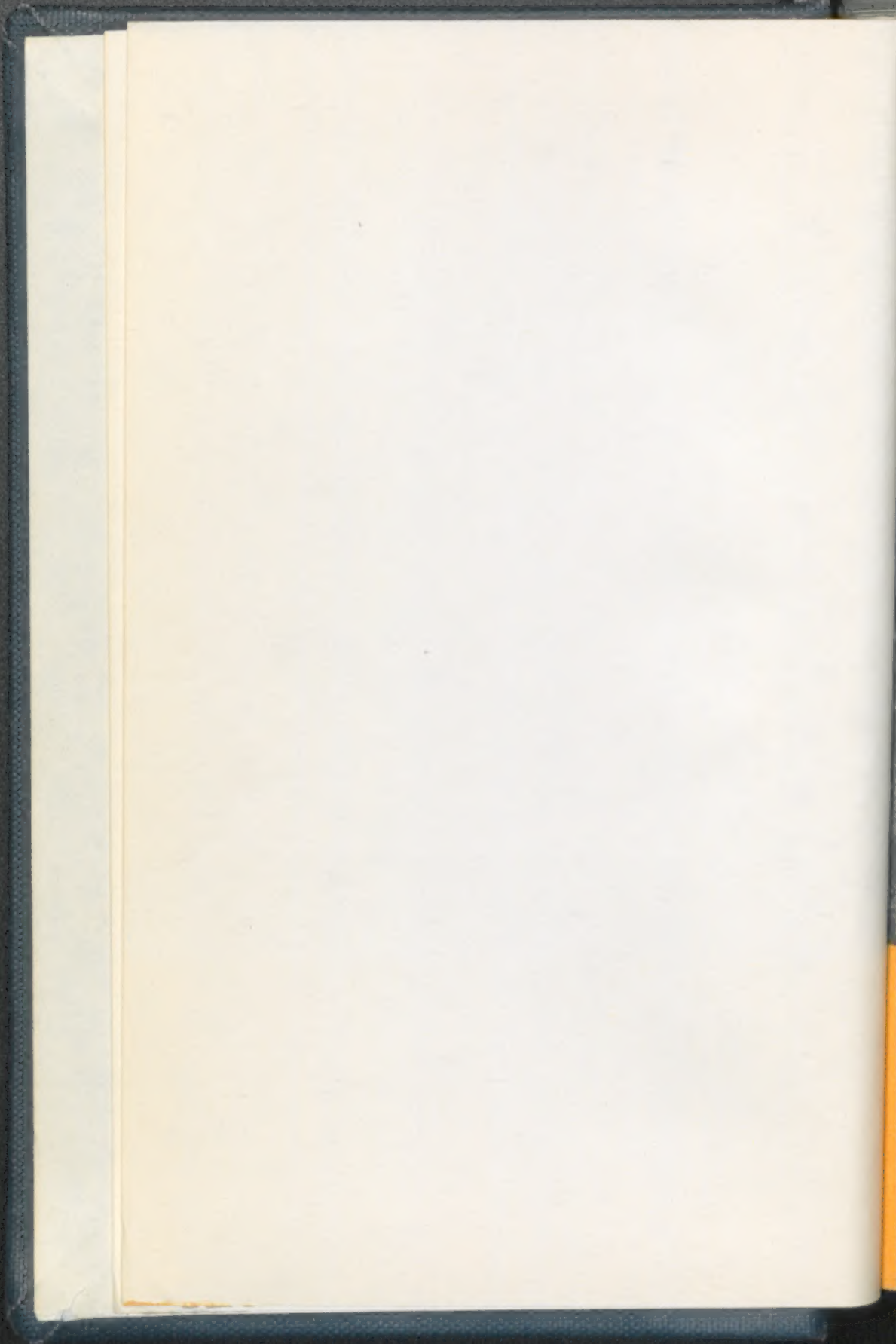


THE
GEORGE
WASHINGTON
UNIVERSITY

CATALOGUE





A SUMMER SEMESTER IN THE NATION'S CAPITAL

The George Washington University Bulletin

THE SUMMER SESSIONS—1964

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CORRESPONDENCE DIRECTORY

Detailed information may be obtained by addressing inquiries as indicated below. For any information not included here, please write to the Director of Admissions, The George Washington University, Washington, D. C. 20006.

Information concerning courses of instruction and the programs of the several colleges and schools will be found in separate issues of the University Bulletin, which are listed on the inside back cover.

Admission.....	Director of Admissions, Building C
School of Medicine.....	1339 H Street NW.
Air Science (ROTC).....	Director of Air Science, Chapin Hall
Alumni Association.....	Alumni Office, Bacon Hall
Medical Alumni Association.....	1335 H Street NW.
Foreign Students.....	Adviser to Foreign Students, Building T
Graduate Study	
In Arts and Sciences	
Master's degrees.....	Dean of Columbian College of Arts and Sciences
Doctor of Philosophy.....	Dean of The Graduate Council
In Education.....	Dean of The School of Education
In Engineering or Applied Science.....	Dean of The School of Engineering and Applied Science
In Law.....	Dean of The Graduate School of Public Law
In Accounting, Business Administration, Business and Economic Statistics, Economic Policy, Health Care Administration, International Affairs, Personnel Administration, Public Administration, Public Affairs.....	Dean of The School of Government, Business, and International Affairs
Housing	
Men.....	Dean of Men
Women.....	Dean of Women
Scholarships.....	Chairman, Committee on Scholarships, Building T
Student Employment.....	Student Placement Office, 2114 G Street NW.
Summer Sessions.....	Dean of the Summer Sessions, Building T
Transcripts of Records.....	Registrar, Building C
Veterans Education.....	Director of Veterans Education

VOLUME LXIII

JANUARY 1964

NUMBER 6

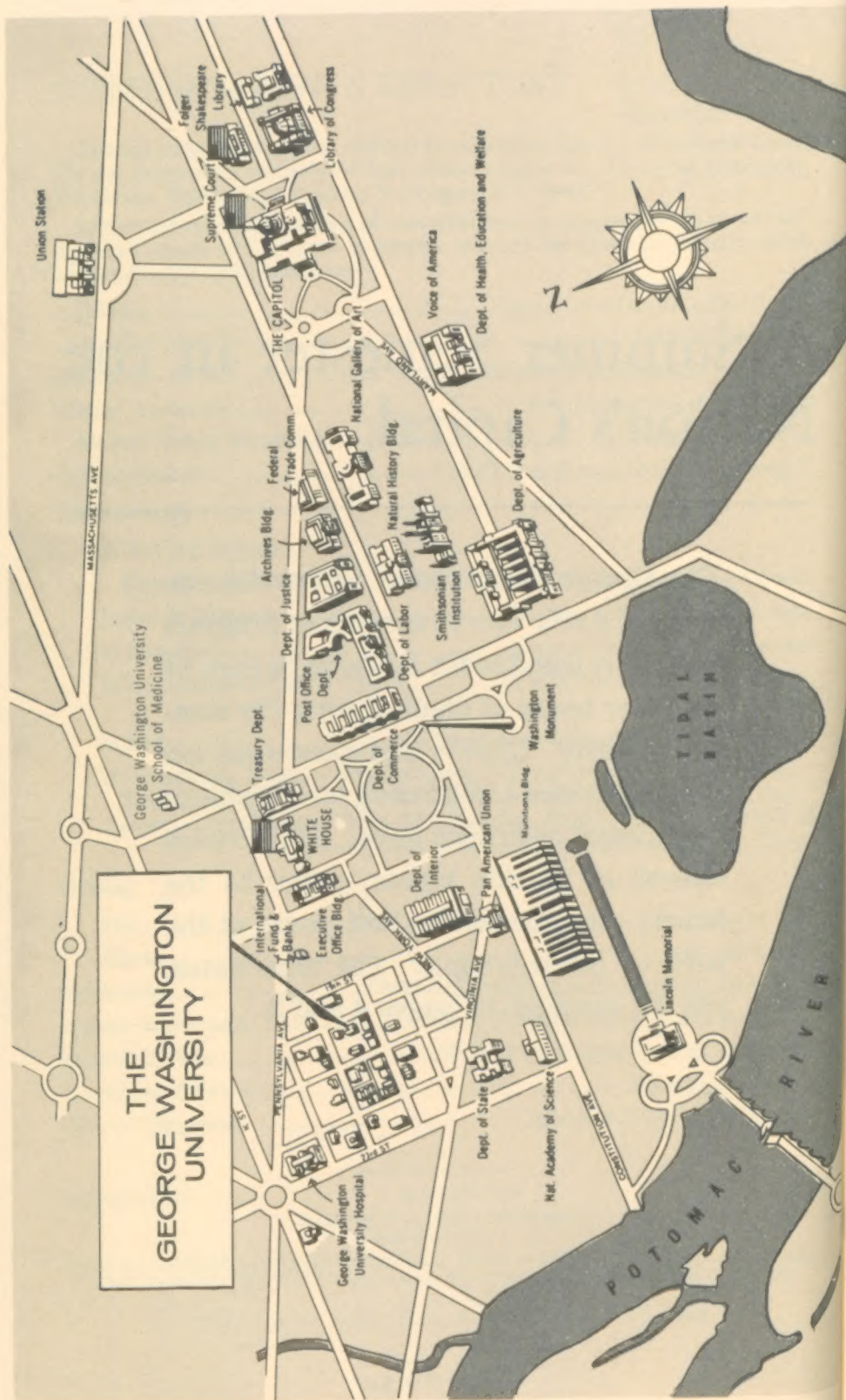
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SECOND CLASS POSTAGE PAID AT WASHINGTON, D. C. 20006

A Summer Semester in the Nation's Capital

The George Washington University announces a new two-term summer program making it possible for students to earn 14 semester hours of credit during the summer months. Library and classrooms are air conditioned and housing is available in the student residence halls. For courses offered at specific times, refer to the hourly schedule on the buff pages at the back of the catalogue. For term dates, see the calendar on pages 4 and 5.



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Calendar for the 1964 Summer Sessions

Students expecting to complete requirements for degrees during the Summer Sessions must apply for graduation as a part of registration for the Summer Session.

COLUMBIAN COLLEGE OF ARTS AND SCIENCES
THE SCHOOL OF GOVERNMENT, BUSINESS, AND INTERNATIONAL AFFAIRS
DIVISION OF UNIVERSITY STUDENTS

FIRST SESSION:

Registration for first 5-week session and 8-week courses (10 AM-8 PM).....	June 15	Mon
Application for graduation due in Registrar's Office	June 15	Mon
First-session classes begin.....	June 16	Tues
Independence Day (holiday).....	July 4	Sat
First-session classes end.....	July 20	Mon
First-session examination day.....	July 21	Tues

SECOND SESSION:

Registration for second 5-week session (10 AM-7 PM)	July 23	Thurs
Application for graduation due in Registrar's Office	July 23	Thurs
Second-session classes begin.....	July 24	Fri
Master's theses completed in summer due in appropriate Dean's Office.....	Aug 26	Wed
Second-session classes end.....	Aug 27	Thurs
Second-session examination day.....	Aug 28	Fri

THE LAW SCHOOL

Registration for all sessions (10 AM-8 PM)	June 8	Mon
First- and 13-week sessions begin.....	June 9	Tues
Independence Day (holiday).....	July 4	Sat
First-session classes end.....	July 17	Fri
First-session examination period.....	July 20-22	Mon-Wed
Registration for students attending 2d session only (10 AM-6 PM).....	July 23	Thurs

Second session begins.....	July 24	Fri
Last day of classes.....	Sept 2	Wed
Second- and 13-week sessions examination period	Sept 3-5	Thurs-Sat

THE SCHOOL OF EDUCATION

First 3-week workshop session registration (10 AM-8 PM).....	June 15	Mon
First 3-week workshop session classes begin	June 16	Tues
First 3-week workshop session classes end...	July 3	Fri
Independence Day (holiday).....	July 4	Sat
Second 3-week workshop session registration† and classes begin.....	July 6	Mon
Six-week session registration† and classes begin	July 6	Mon
Ed.D. and A.M. in Ed. July comprehensive examination applications due.....	July 10	Fri
Second 3-week workshop session classes end	July 24	Fri
Ed.D. and A.M. in Ed. comprehensive examinations	July 25	Sat
Third 3-week workshop session registration‡ and classes begin.....	July 27	Mon
Six-week session and third 3-week workshop session classes end.....	Aug 14	Fri

Registration for fall semester of academic year 1964-65, Thursday through Saturday morning, September 17-19.

† Registration, 9 A.M.-6 P.M.

‡ Registration, 9 A.M.-5 P.M.

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* The President of the University, the Dean of Faculties, the Vice President for Plans and Resources, the Registrar, and the Director of Admissions are ex officio members of all faculties of the schools, colleges, and divisions of the University.

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The University

HISTORY AND ORGANIZATION

The George Washington University had its beginning in 1821 as The Columbian College in the District of Columbia. The name of the institution was changed in 1873 to Columbian University and in 1904 to The George Washington University. The debt of the University to George Washington whose name it bears is an intangible one.

George Washington, as President and as private citizen, had urgently insisted upon the establishment of a National University in the Federal City. There he hoped that, while being instructed in the arts and sciences, students from all parts of the country would acquire the habits of good citizenship, throwing off local prejudices and gaining at first hand a knowledge of the practice, as well as the theory, of republican government. To further the materialization of his hopes, Washington left a bequest of fifty shares of The Potomac Company "towards the endowment of a University to be established within the limits of the District of Columbia, under the auspices of the General Government, if that government should incline to extend a fostering hand towards it." The Congress never extended "a fostering hand". The Potomac Company passed out of existence, and Washington's bequest became worthless.

Fully conscious of Washington's hopes, but motivated primarily by a great missionary urge and the need for a learned clergy, a group of dedicated ministers and laymen sponsored a movement for the establishment of a college in the District of Columbia. Inspired largely by the zeal and energy of the Reverend Luther Rice, they raised funds for the purchase of a site and petitioned Congress for a charter. After much delay and amendment, Congress granted a charter which was approved by President Monroe on February 9, 1821. To safeguard the College's nonsectarian character it provided "That persons of every religious denomination shall be capable of being elected Trustees; nor shall any person, either as President, Professor, Tutor or pupil, be refused admittance into said College, or denied any of the privileges, immunities, or advantages therefore, for or on account of his sentiments in matters of religion."

During the entire time when the institution was known as Columbian College, its activities were centered on College Hill, a tract of forty-six and a half acres between the present Fourteenth and Fifteenth Streets extending north from Florida Avenue to somewhat beyond Columbia Road. The Medical School was located downtown. For the better part of the Columbian University period, the buildings of the University were situated along H Street between Thirteenth and Fifteenth Streets. The Medical School group still remains there.

During the last half century the University's present plan has been developed in that section of the old First Ward familiarly known as "Foggy Bottom," between Nineteenth and Twenty-fourth Streets, south of Pennsylvania Avenue. Within a few squares are the White House, the Department of the Interior, the State Department, the World Bank, and many other governmental offices and international agencies. The area is not without its reminders of historic interest to the University. President Monroe who signed the Charter lived at 2017 Eye Street. The first President of the Board of Trustees, the Reverend Obadiah B. Brown, was for fifty years the pastor of a church at Nineteenth and Eye Streets, and Washington selected Twenty-third and E Streets as the site of the National University he had hoped to see established.

The University as it is now organized consists of Columbian College of Arts and Sciences, which offers work leading to Associate's, Bachelor's, and Master's degrees:

the Graduate Council, which offers work leading to the degree of Doctor of Philosophy; the professional schools, which include Medicine; Law; Engineering and Applied Science; Education; and Government, Business, and International Affairs; the College of General Studies; the Division of University Students; the Division of Air Science; and the Summer Sessions.

The George Washington University is privately endowed and is governed by a self-perpetuating Board of Trustees of which the president is an ex officio member.

ACADEMIC STATUS

The George Washington University is accredited by its regional accrediting agency, the Middle States Association of Colleges and Secondary Schools. This is important to students who wish to transfer credits from one institution to another.

The University is on the approved list of the American Association of University Women and is a member of the College Entrance Examination Board.

The Law School is a charter member of the Association of American Law Schools and is approved by the Section of Legal Education and Admissions to the Bar of the American Bar Association. The School of Medicine is a member of the Association of American Medical Colleges and is one of the medical colleges which have been continuously approved by the American Medical Association. The School of Engineering and Applied Science is on the accredited list of the Engineers' Council for Professional Development. The School of Education is a charter member of the American Association of Colleges for Teacher Education and is accredited by the National Council for Accreditation of Teacher Education. The Department of Chemistry is on the approved list of the American Chemical Society.

EDUCATIONAL FACILITIES

The University Library.—The University Library contains approximately 394,000 volumes and, with the exception of the Law and medical collections, is housed in the Library Building.

Regulations governing the use of the library, the circulation of books, and the use of reserve books and periodicals are available at the service desks of the Library.

Other Library Facilities in Washington.—The student has access also to the Library of Congress, the Public Library of the District of Columbia and its branches, the Library of the Pan American Union, the Library of the Bureau of Railway Economics, the Library of the United States Department of Agriculture, the Library of the United States Office of Education, the National Library of Medicine, the Library of the Smithsonian Institution, and many other great special collections of the government departments.

Research Facilities of Washington.—The arrangement of the summer schedule of classes permits the full-time student to avail himself of the opportunity to study, at first hand, the working of the Federal Government and so to form a background for intelligent and useful citizenship.

In the departmental libraries of the Federal Government are a multitude of reports made by eminent specialists in all fields of science on the results of study and research in the bureaus, experimental stations, laboratories, museums, and observatories of the Nation.

In addition to the governmental collection the student has available the research facilities of such scientific and educational groups, whose headquarters are situated in Washington, as the Carnegie Institution, the American Council on Education, the National Academy of Sciences, the National Research Council, the National Education Association, and the National Geographic Society.

The Summer Sessions

The work of the Summer Sessions has been planned to meet the needs of full- and part-time students.

During the summer of 1964, Columbian College of Arts and Sciences; the School of Government, Business, and International Affairs; and the Division of University Students offer courses in two 5-week sessions, with some graduate seminars and courses extending over an 8-week period. The Law School and Graduate School of Public Law offer courses in three sessions and the School of Education offers courses in a 6-week session and three 3-week workshop sessions.

The time at which each course is offered (session and hours) is stated at the end of the course. For the further convenience of the student a schedule of classes, arranged by session appears on the buff pages at the end of this Catalogue.

Admission

APPLICATION FOR ADMISSION OR READMISSION

Application for nondegree status in the Division of University Students must be received, with any required credentials, by the registration date of the session for which admission is sought (See Calendar, pages 4 and 5).

To insure consideration, application for degree candidacy, together with all required credentials, should be received by May 1 for the first session and June 1 for the second session. Late applications will be considered only if the application and all required credentials are received in the Admissions Office by June 1 for the first session and July 1 for the second session.

For admission to the Law School and the Graduate School of Public Law, see pages 21 and 22.

APPLICATION FORMS

Nondegree Status.—The form inside the back cover of this Bulletin should be used by all nondegree applicants who have not previously attended this University—except those who desire to take work in the Law School or the Graduate School of Public Law. Application blanks for such courses in Law should be requested from the Office of Admissions. Completed application forms should be mailed to the Office of the Director of Admissions.

Degree Candidates.—Applicants for admission as degree candidates should request the regular Application for Admission form from the Office of the Director of Admissions. This form should be completed and mailed to the Office of the Director of Admissions, with the application fee of \$15.

Readmission.—A student previously registered in this University who did not attend during the spring semester preceding this registration should complete and return an Application for Readmission form, which is available at the Office of Admissions.

THE STUDENT NOT SEEKING A DEGREE

The student not seeking a degree from this University should apply for admission to the Division of University Students, a nondegree-granting division which makes the work of the University available to the following three types of applicants:

1. The student registered for a degree at another institution is admitted to the extent that facilities permit. No transcript of record is required.*

2. The student over 21 years of age who is not working for a degree in this or another institution may be admitted to take courses for which he has adequate preparation, as determined by the department concerned. No transcript of record is required.*

3. Secondary school applicants under 21 years of age who have not attended a college or higher institution may be admitted if they meet the entrance requirements of Columbian College of Arts and Sciences (see pages 20 and 21).

THE STUDENT SEEKING A DEGREE

An applicant from a secondary school must (1) send to his high school principal the high school record form provided by the University, with the request that the completed form be mailed to the Office of the Director of Admissions; and (2) request a report of scores on the Scholastic Aptitude Test and the English Composition Achievement Test from the College Entrance Examination Board. Applicants are urged to submit scores on two additional achievement tests in subjects reflecting their major interests.

An applicant who has attended one or more institutions of higher learning must request each registrar to mail to the Office of the Director of Admissions a transcript of his record, even though credits were not earned. An honorable dismissal is required from the institution last attended.

The appropriate report of Graduate Record Examination, when available, should accompany application to graduate degree candidacy.

* For admission to the Division of University Students the student must be in good standing and eligible to continue in the institution last attended during the past calendar year. No student is eligible for admission if he has been academically suspended within the past calendar year.

Registration

A student may not register for classes until the Office of the Director of Admissions has approved his admission to this University.

A student previously registered in this University who did not attend during the spring semester preceding this registration must file an application for readmission in advance of registration.

Students expecting to complete requirements for degrees during the Summer Sessions must apply for graduation as a part of registration for the Summer Sessions.

Registration for all sessions of the Law School and Graduate School of Public Law summer term will be held June 8. *Summer students planning to take the New York Bar examination must register at this time for both sessions and complete both.*

Students wishing to attend the second session only may register on July 23. Tuition fees are payable by the session.

In special instances, with the permission of the instructor, a person who has been admitted to the University may be registered as an auditor in a class without being required to take active part in the exercises or to pass examinations. No academic credit will be allowed for such attendance. A student who takes a course as an auditor may not take the same course later for credit.

CHANGES IN PROGRAM OF STUDY

Changes in programs of study may be made only with the permission of the adviser or major professor and the dean or director of the college, school, or division concerned.

Fees and Financial Regulations

The following fees have been adopted for the summer of 1964:

Tuition Fees

For each semester hour* (except for work taken by a candidate for a Doctor's degree)	\$36.00
Doctor of Philosophy†, Doctor of Business Administration‡, or Doctor of Public Administration§:	
For work leading to and including the general examination.....	1,200.00
For work leading to and including the final examination.....	1,200.00
Doctor of Education§:	
For work leading to and including the major field examination.....	1,500.00
For work leading to and including the final examination.....	900.00
Doctor of Juridical Science, including the final examination.....	1,200.00

* Payment of tuition for the Master's thesis entitles the candidate, during the academic year of registration, to the advice and direction of the member of the faculty under whom the thesis is to be written. In case a thesis is unfinished, an additional successive academic year may be granted without further tuition payment. The student must, however, be registered "in residence" during this period. If the preparation of the thesis extends beyond the second academic year, it must be registered for again, and tuition paid on the same basis as for a repeated course.

† The tuition fee is to be paid in full at the time of registration or in two years at the rate of \$300 a semester. No residence fee will be charged if a third year is needed for completion of either part of the degree requirements.

‡ This fee does not cover the cost of undergraduate courses numbered 1 to 100.

§ See footnote on page 14.

Additional Course Fees

In certain courses additional fees, such as laboratory and material fees, are charged as indicated in the course descriptions. These fees are due with the tuition fee for the course. Breakage of apparatus is charged against the individual student. When breakage is in excess of the normal amount provided for in the laboratory fee, the individual student will be required to pay such additional charges as are determined by the department concerned.

Graduation Fees

Associate in Arts or Associate in Science.....	10.00
Bachelor's, Master's, and Doctor's degrees.....	25.00
Advanced Professional Certificate.....	25.00
Fee for Binding Master's Thesis.....	6.00
Fee for Printing Summary of Doctoral Dissertation.....	85.00

Special Fees

Application fee (degree candidate) nonrefundable.....	15.00
Application fee, Unclassified Students in the Law School or the Graduate School of Public Law, nonrefundable.....	5.00
Admission tests (when required).....	6.00-12.00
Late registration fee, for failure to register within the designated period.....	5.00
Change fee, for each change in program; dropping or adding a course, changing from one section to another within a course, change of status (from auditor to credit status or vice versa), and change in credit hours for a course.....	2.00
Service fee, for late payment of tuition (see "Payment of Fees").....	2.00
Reinstatement fee, for reinstatement after financial suspension.....	5.00
For each examination to qualify for advanced standing and for each special examination.....	5.00
English test for foreign students (when required).....	5.00
Laboratory check out fee, for failure to check out of chemistry laboratory by the date deadline set by the instructor.....	3.00
Transcript fee, for each transcript of record.....	1.00
Withdrawal fee, charged in special cases.....	5.00

Registration in the University entitles each student to the following University privileges: (1) the services of the Placement Office; (2) the use of the University library; (3) medical attention and hospital services described on page 16. These privileges terminate when the student withdraws or is dismissed from the University.

PAYMENT OF FEES

All fees are payable at the Office of the Cashier, 725 Twenty-first Street, NW. No student is permitted to complete registration or to attend classes until all fees are paid. Fees for each session are due in advance at the time of registration.

An auditor pays all fees chargeable to the student registered for credit except the late-registration fee.

WITHDRAWALS AND REFUNDS

Registrations are for the session, and no refunds or rebates are allowed. In no case will tuition be refunded because of absence from classes.

§ As long as there is an unpaid balance for the part of the program on which the student is working, he must make at least the minimum tuition payment of \$150 at each fall and spring registration (and for any summer session in which he registers for academic work). If the total fee is paid for the part of the program on which the student is working, he may continue to register, without additional fee, for courses approved by his Master in Research, until the expiration of the time allowed for that part of his program.

Payments apply only to the session for which registration charges are incurred, and in no case will these payments be credited to another session or term.

Students in chemistry who fail to check out of the laboratory on or before the date set by the instructor, unless excused by the instructor, will be charged a \$3 check-out fee. A student who drops a course before the end of the session must check out of the laboratory at the next regular laboratory period.

Authorization to withdraw and certification for work done will not be given a student who has not a clear financial record.

University Regulations

Students in the Summer Sessions are subject to the University regulations governing students enrolled during the academic year. Degree candidates are referred to the catalogues of the schools in which they are registered. Nondegree students should consult the catalogue of the Division of University Students.

Academic Credit.—The Summer Sessions are an integral part of the University. Academic credit for completed work will be given toward the appropriate degrees in the various colleges and schools of the University in accordance with their separate regulations and requirements.

Residence.—Summer Sessions work may be counted in residence but the candidate for a degree must satisfy the residence requirements of the school or college concerned.

Amount of Work.—No full-time student may take more than 7 semester hours of work during each 5-week session; no employed student, more than 4 hours.

In the Law School and the Graduate School of Public Law the maximum amount of work that may be taken in a session by a full-time student is 6 semester hours; by an employed student, 4 semester hours.

The right is reserved by the University to dismiss or exclude any student from the University, or from any class or classes, whenever, in the interest of the student or the University, the University Administration deems it advisable to do so.

The University and its various colleges, schools, and divisions reserve the right to modify or change requirements, rules, and fees. Such regulations shall go into force whenever the proper authorities may determine.

The University is not responsible for the loss of personal property in any University building. A "Lost and Found" office is maintained in the Student Union.

Student Services and Activities

HEALTH SERVICES

The Health Services Staff assists students with their medical needs by advice and treatment, by proper referral when necessary, and by cooperation with other physicians. For medical emergencies and health consultations there is, on the campus, a Student Health Clinic open from 9 am. to 5 pm., Monday through Friday, during the academic year and Summer Sessions, with physician and nurse in attendance. There is also a rest room for women, with a graduate nurse in charge. For night and week-end emergencies, students may go to the emergency room of the University Hospital for treatment. The basic fee for this visit will be paid by the Health Services, and all other charges will be the responsibility of the student. This arrangement is for emergency care only.

Medical privileges include: (1) physical examination of all students who are applicants for courses in Physical Education;* (2) three visits in any one illness by a member of the Health Services Staff, office or residence (District of Columbia); (3) hospitalization, including board and nursing, in the University Hospital for not more than one week during any twelve-month period—the necessity to be determined by the Director of Health Services.† All additional hospital charges for operating room, anesthetics, laboratory, X-ray, medications, or any special services must be paid by the student. Expenses incurred for examinations and treatment by specialists, such as eye refraction and provision of glasses; orthopedic examinations and application of cast or other appliance; laboratory and X-ray work; and surgical operations must be paid by the student.

This medical benefit applies only to illness or disability incurred while currently enrolled in the University. It does not apply to illness or disability incurred between the last day of examinations for a semester or summer session and completion of registration for the next semester or summer session.

The student is allowed, if he so desires, to engage physicians and nurses of his own choice, but when he does so he will be responsible for the fees charged.

Rules: (1) The Director of Health Services is empowered to limit or deny the medical benefits where, in his discretion, a student has, by his misconduct or breach of the rules of the University, made himself ineligible; (2) the Director of Health Services has authority to determine the necessity and length of hospitalization; (3) a student not currently enrolled or one who has severed his connection with the University is ineligible for medical benefits; (4) a student intending to train for an athletic team is required to pass a thorough examination at the beginning of each semester; (5) hospitalization is not available to those students availing themselves of other hospitalization coverage for the same illness.

The University is not responsible for injuries received in intercollegiate or intramural games, or in any of the activities of the physical education departments.

* A charge for a special physical examination is made by the University if a student fails to appear for a physical examination during the period set for this purpose.

† See rule (5) for exception

VETERANS EDUCATION

The personnel of the Office of the Dean of Men act as advisers to veterans and war orphans and in a liaison capacity between the University and the Veterans Administration. This Office should be consulted concerning educational benefits before applying to the Veterans Administration for certification. The Veterans Administration is on Constitution Avenue at Twentieth Street NW., Washington, D. C. 20421.

Students eligible under one of the state laws should also contact this Office.

PUBLIC LAW 634 (WAR ORPHANS' EDUCATIONAL ASSISTANCE ACT)

A child of a person who died of a disease or injury incurred or aggravated while on active duty in the Armed Forces during World War I, World War II, or the Korean Conflict may be eligible for educational assistance under this Act, if certain age requirements are met. In the case of a child who has not reached the age of majority, his guardian must make application for him to the Veterans Administration.

PUBLIC LAW 190 (WORLD WAR II GI BILL EXTENSION)

The educational benefits for World War II veterans terminated July 25, 1956, except for persons eligible under special enlistment provision.

PUBLIC LAW 550 (KOREAN GI BILL)

To be eligible, a veteran must have been in service between June 27, 1950 and January 31, 1955, no longer be on active duty, and have begun his education within three years after separation. Such students have eight years from separation or January 31, 1965, whichever is earlier, to use their benefits.

Application for benefits to the Veterans Administration should be made as early as possible; V.A. approval should be presented to the veterans adviser from the Office of the Dean of Men during the registration procedure.

PUBLIC LAWS 16, 894, AND 87-815 (VOCATIONAL REHABILITATION)

Disabled veterans desiring vocational rehabilitation under these laws should apply to the Veterans Administration for approval of their training objectives at least sixty days prior to registration.

RESIDENCE HALLS

Admission to the University does not include a room reservation. A separate application for a room should be made well in advance.

All unmarried women students under twenty-one years of age and enrolled for 6 or more hours during a summer session are required to live in the University residence halls or at home with their parents. Upon written approval of their parents and the permission of the Dean of Women, freshman women may live with immediate relatives and upperclass women may live with contemporaries of their parents. Under no circumstances may a woman student under twenty-one years of age taking a full academic program live in an apartment with her contemporaries.

Philosophy
Physics
Political Science
Psychology
Regional Science
Religion
Russian
Sociology

Spanish-American Literature
Spanish Language and Literature
Speech:
 Speech
 Dramatic Art
Urban and Regional Development
Zoology

Curricula leading to the degree of Bachelor of Science are available in the following major fields:

Biology
Botany
Chemistry
Geology

Mathematical Statistics
Mathematics
Physics
Zoology

GRADUATE FIELDS

Graduate work leading to the degree of Master of Arts or Master of Science is offered in the following fields. In addition, programs can be arranged in combined fields subject to the approval of the Committee on Studies.

American Literary and Cultural History
Anatomy
Anthropology
Art History and Criticism
Biochemistry
Biology
Botany
Chemistry
Economics
English and American Literature
English Literature
French Language and Literature
Geography
Geology
Germanic Languages and Literatures
History
Latin American Civilization

Linguistics
Mathematical Statistics
Mathematics
Microbiology
Pharmacology
Philosophy
Physics
Physiology
Political Science
Psychology
Religion
Religious Education
Sociology
Spanish-American Literature
Spanish Language and Literature
Speech Correction
Zoology

Graduate work leading to the degree of Master of Fine Arts is offered in the field of painting and of sculpture and in the field of dramatic art.

ENTRANCE REQUIREMENTS*

Requirements for admission to the freshman class are as follows:

1. An acceptable certificate of graduation from an accredited secondary school showing at least fifteen units† which must include four years of English; at least two years of one foreign language; two years of science, preferably with laboratory instruction; two years of social study, one of which must be American history; and two years of college preparatory mathematics. It is to be noted that one unit of algebra or the equivalent, is prerequisite to courses in chemistry and statistics, and that one unit in algebra and one unit in plane geometry, or the equivalent, are prerequisite to courses in mathematics and physics.

* Entrance requirements are established by the faculties of the several colleges, schools, and divisions. The Director of Admissions, as agent for the faculties, administers regulations governing admission, readmission, and transfer.

† A unit represents a year's study in a secondary school subject, including in the aggregate not less than 120 sixty-minute periods, or the equivalent, of prepared classroom work.

2. The principal's statement that the applicant is prepared to undertake college work.

3. College Entrance Examination Board scores, which must be submitted on the Scholastic Aptitude Test and the English Composition Achievement Test. Applicants are urged to submit scores on two additional achievement tests in subjects reflecting their major interests.

A person who does not present all of the formal requirements stated above may request the Director of Admissions to present his case to the Columbian College Committee on Admission and Advanced Standing. The Committee may prescribe appropriate tests.

The applicant is responsible for

- a. Sending the report form obtained from the Admissions Office to his principal who will complete the form and forward it directly to the Director of Admissions.
- b. Requesting a report of scores on the Scholastic Aptitude Test and the achievement tests to be sent to the Director of Admissions by the Educational Testing Service, 20 Nassau Street, Princeton, New Jersey. Write directly to the Board for information as to testing dates, fees, and center locations.

For the Master's Degrees.—An approved Bachelor's degree from an accredited higher institution; an appropriate distribution of courses; and a superior quality of work in the major field.

THE GRADUATE COUNCIL

The Graduate Council offers work leading only to the degree of Doctor of Philosophy. There is no specified amount of graduate work required for this degree beyond the first full year of graduate study. However, each student may be assigned whatever additional graduate course work his committee deems essential to his doctoral program. A limited amount of this graduate work is offered by some departments in the Summer Sessions. A student wishing to work under the disciplines of the Graduate Council will consult the Dean of the Graduate Council for information concerning credentials and candidacy.

A catalogue describing details of the Graduate Council program, together with a current list of fields of research offered by the Council, will be sent upon request by the Office of the Graduate Council.

THE NATIONAL LAW CENTER

The Law School offers work leading to the degree of Bachelor of Laws; the Graduate School of Public Law offers work leading to the degrees of Master of Laws, Master of Comparative Law, and Doctor of Juridical Science.

The Law School and the Graduate School of Public Law Application form contains an instruction sheet stating the credentials which are required. The application blank attached to this catalogue does not apply to the Law School.

See "Registration", on page 13 for provisions applicable to students who plan to take the New York Bar examination.

ENTRANCE REQUIREMENTS

Unclassified Students.—A degree candidate with an above average record at another law school which is a member of the Association of American Law Schools or is approved by the American Bar Association may, at the discretion of the Dean, be admitted as an unclassified student to earn credits for transfer to the other law school. Unclassified students must previously have completed at least one year of law school work.

A member of the bar or a person, not a member of the bar, who is a graduate of a member school of the Association of American Law Schools or a law school approved by the American Bar Association may, at the discretion of the Dean, be admitted as an unclassified student.

Unclassified students participate in the work of the course and take examinations. Courses taken by unclassified students will not be credited toward degrees at the Law School or the Graduate School of Public Law.

For the Degree of Bachelor of Laws.—Students from other law schools which are members of the Association of American Law Schools or are approved by the American Bar Association may apply for transfer to this Law School with advanced standing. No new students are admitted as candidates for the degree of Bachelor of Laws in the summer term.

For the Degree of Master of Laws.—A Bachelor of Arts or equivalent degree from an approved college or university* and a Bachelor of Laws or equivalent degree from a law school which is a member of the Association of American Law Schools or is approved by the American Bar Association are required. Candidates for admission must have attained a B average on all work done for the Bachelor of Laws degree, except that, at the discretion of the Faculty applicants otherwise eligible may be admitted on proof of experience and attainment as an alternative.

For the Degree of Master of Comparative Law.—The following are required: (1) the successful completion of and graduation from a course in arts, philosophy, letters, or sciences, equivalent to graduation from a gymnasium, lycée, or lyceeo; and (2) graduation in law from a recognized foreign university where training was in Civil Law.

For the Degree of Doctor of Juridical Science.—The following are required: a Bachelor of Arts or equivalent degree from an approved college or university*; a Bachelor of Laws or equivalent degree, earned with high rank, from a law school which is a member of the Association of American Law Schools or is approved by the American Bar Association; and outstanding capacity for scholarly work in the field of law.

Continuing Legal Education Students.—A simplified admission and registration procedure is used for members of the bar who wish to take courses on a noncredit basis.

THE SCHOOL OF EDUCATION

The School of Education prepares teachers, counselors, and administrators for the higher ranges of educational service and offers opportunities to teachers of experience to extend their education. The schedule of courses is arranged to meet the needs of employed students as well as those able to devote full time to their studies. It offers both graduate and undergraduate work.

* The Dean of the Graduate School of Public Law is authorized to make exceptions in appropriate cases.

THE DEGREES

The School of Education offers work leading to the following degrees: Bachelor of Arts in Education, Bachelor of Science in Physical Education, Master of Arts in Education, Education Specialist, and Doctor of Education. An Advanced Professional Certificate is also offered.

ENTRANCE REQUIREMENTS

For the Bachelor's Degrees.—The satisfactory completion of two years of approved college work, or graduation from an approved two-year normal school, or the equivalent, is required.

For the Master's Degree.—A Bachelor's degree from an accredited college, or the equivalent, a score on a required aptitude examination, and the approval of the Committee on Admission and Advanced Standing are required.

For the Advanced Professional Certificate.—The Bachelor of Arts degree in Education or the Bachelor of Science degree in Physical Education from the School of Education, or the equivalent from another institution of higher learning; a Master's degree, from an accredited institution of higher learning, at least two years of successful teaching experience, and a permanent teaching license are required.

For the Doctor's Degree.—A Master's degree from an accredited college, or the equivalent, an aptitude examination, and at least three years of satisfactory educational experience are required.

THE SCHOOL OF GOVERNMENT, BUSINESS, AND INTERNATIONAL AFFAIRS

THE DEGREES

The School of Government, Business, and International Affairs offers work leading to the following degrees: (1) Bachelor of Arts in Government with a major in International Affairs or Public Affairs; (2) Bachelor of Business Administration with a major in Accounting, Business Administration, or Business and Economic Statistics; (3) Master of Arts in Government with a major field in International Affairs, Public Affairs, Economic Policy, Public Administration, Business and Economic Statistics, or Personnel Administration; (4) Master of Business Administration with a major field in Accounting, Business Administration, Health Care Administration, or Personnel Administration; (5) Master of Public Administration with a major field in Public Administration or Personnel Administration; and (6) Doctor of Business Administration or Doctor of Public Administration.

The Master's degrees are based on completion of prescribed course work, the comprehensive examination, and thesis. The minimum Master's program is 30 semester hours of which 6 represent the thesis. At least 30 hours must be completed at this University. Applicants whose undergraduate training does not include background courses necessary before taking the comprehensive examination must undertake programs longer than the 30-hour minimum.

For the Master of Business Administration degree the complete program consists of 60 semester hours, 54 hours of course work and 6 of thesis; and students with no previous background in business administration or accounting are rarely advised to

take the comprehensive examination before completing 54 hours of course work. Students who have an undergraduate background in either business administration or accounting, however, are encouraged to take the comprehensive examination as soon as the curriculum adviser believes they are prepared for it. A student who has completed an undergraduate major in accounting or in business administration with a good record may qualify under a minimum acceptable program of 30 hours, including the thesis. No more than 6 hours of graduate course credits can be transferred from other institutions and each transfer of credit must be approved by the Dean.

ENTRANCE REQUIREMENTS

FOR THE BACHELOR'S DEGREES

Bachelor of Arts in Government.—The satisfactory completion of the *International Affairs* or *Public Affairs* curriculum in the lower division of Columbian College of Arts and Sciences, or the equivalent.

Bachelor of Business Administration.—The satisfactory completion of the *Accounting and Business Administration* or the *Business and Economic Statistics* curriculum in the lower division of Columbian College of Arts and Sciences, or the equivalent.

FOR THE MASTER'S DEGREES

A Bachelor's degree from an accredited college or university is required.

Students admitted to candidacy must have attained a quality-point index of 3.00 (a B average) in the relevant undergraduate fields.

MASTER OF ARTS IN GOVERNMENT

In the field of Public Administration.—An undergraduate major in a social science or business administration, or equivalent work experience.

In the field of Public Affairs.—An undergraduate major in public affairs, economics, history, or political science, depending on the field of specialization.

In the field of International Affairs.—The applicant's undergraduate program should include background courses corresponding to an undergraduate major in international affairs at this University.

In the field of Economic Policy.—An undergraduate major in economics at this university, or the equivalent.

In the field of Business and Economic Statistics.—An undergraduate major in business and economic statistics, or the equivalent.

In the field of Personnel Administration.—An undergraduate major in a social science or education, with appropriate courses in psychology.

MASTER OF BUSINESS ADMINISTRATION

In the field of Accounting or Business Administration.—A Bachelor's degree from an accredited college or university.

In the program of automatic data processing appropriate courses in mathematics are required.

In the field of Health Care Administration.—A Bachelor's degree from an accredited college or university. In the selection of candidates consideration will be given to personal qualifications, aptitude for health care administration, and practical experience.

In the field of Personnel Administration.—An undergraduate major in a social science or education, with appropriate courses in psychology.

MASTER OF PUBLIC ADMINISTRATION

In the field of Public Administration.—A Bachelor's degree from an accredited college or university.

In the field of Personnel Administration.—An undergraduate major in a social science or education, with appropriate courses in psychology.

FOR THE DOCTOR'S DEGREES

Doctor of Business Administration.—The degree of Master of Business Administration, Master of Arts in an approved field, or the equivalent, together with acceptable personal qualities and a capacity for creative scholarship. Each applicant must demonstrate his competence by qualifying examination in statistics and accounting.

Doctor of Public Administration.—The degree of Master of Public Administration, Master of Arts in an approved field, or the equivalent, together with acceptable personal qualities and a capacity for creative scholarship. Each applicant must demonstrate his competence by qualifying examination in two tools of research, chosen as the program dictates.

THE COLLEGE OF GENERAL STUDIES

The College of General Studies supplements the adult education program of the University through Off-Campus Study; Campus Study; Institutes, Conferences, and Special Projects; and Continuing Education and Noncredit Programs. This College offers programs leading to the degrees of Associate in Arts; Associate in Science; Associate in Secretarial Administration; Bachelor of Arts; Bachelor of Science in Cartography; Bachelor of Business Administration; Master of Arts in the fields of Financial Management, Governmental Administration, and Personnel Administration; Master of Arts in International Affairs; Master of Science in Business Administration; and Master of Science in Public Administration.

ENTRANCE REQUIREMENTS

Off-Campus Credit Courses.—A simplified procedure is used for admission and registration in off-campus courses. Transcripts of previous academic work are not required. Registration is restricted to those whose qualifications would indicate that they are able to carry the course successfully. Admission to an off-campus course does not constitute admission to degree candidacy in the University.

Noncredit Courses.—In general, noncredit courses will be open to any individual interested in enrolling. When a noncredit course is organized at the request of some particular agency or group, admission may be restricted to the students recommended by the sponsoring organization. A limit on the size of classes may have to be imposed in order to maintain the quality of instruction.

The separate catalogue of the College of General Studies, available at the College, 706 Twentieth Street NW., Washington, D. C. 20006, contains full information concerning programs, courses, entrance and degree requirements, and fees.

THE DIVISION OF UNIVERSITY STUDENTS

The Division of University Students makes the work of the University, in its several colleges and schools, accessible to three types of students who are not working toward a degree in this University (see page 12).

Courses of Instruction

EXPLANATION OF COURSE NUMBERS

First-group courses.—Courses numbered from 1 to 100 are planned for the student in the freshman or sophomore year. With the approval of the adviser and the dean, they may also be taken by a junior or senior. In certain instances, they may be taken by a graduate student to make up undergraduate deficiencies or as prerequisites to advanced courses, but they may not be credited toward a higher degree.

Second-group courses.—Courses numbered from 101 to 200 are planned for the student in the junior or senior year. They may be credited toward higher degrees only when registration for graduate credit has been approved at the beginning of the course by the dean responsible for the graduate work and by the officer of instruction, and when the completion of additional work has been certified by the officer of instruction.

Third-group courses.—Courses numbered from 201 to 300 are planned primarily for the graduate student. They are open, with the approval of the officer of instruction, to the qualified senior; they are not open to the freshman or sophomore student.

In the National Law Center, first-year courses are numbered from 100 to 200; second-year courses, from 201 to 300; third-year courses from 301 to 400; and graduate courses, from 401 to 500.

INDICATION OF THE AMOUNT OF CREDIT

The number of hours of credit given for the satisfactory completion of a course is in most cases indicated in parentheses after the name of the course.

The Schedule of Classes for the Summer Sessions, which will be available in April at the Office of the Registrar, will contain information about room assignments and instructors for courses.

The University reserves the right to change or withdraw any of the courses of instruction listed.

ACCOUNTING (See Government and Business, pages 36-37).

ART

ART HISTORY AND THEORY

1 *Art Appreciation* (3)

The language and function of art in its various media; the historical development of styles, aesthetic principles, theories, and the ideas in art through the ages. Primarily for nonmajors. **Second Session:** MTWThF 1:10-2:30 pm.

71 *Introduction to the Arts in America* (3)

Painting, sculpture, and architecture of America, with selected references to the crafts and popular arts from Colonial beginnings to the Republican Age. **Second Session:** MTWThF 11:10 am-12:30 pm.

107 *Eighteenth Century Art in Europe* (3)

The development of painting, sculpture, and architecture in 18th century Europe. **Second Session:** MTWThF 2:40-4 pm.

109 *Nineteenth Century Art in Europe* (3)

Painting and sculpture from Academism to Symbolism. **First Session:** MTWThF 9:40-11 am.

110 *Contemporary Art* (3)

Painting and sculpture in 20th century Europe. **First Session:** MTWThF 11:10 am-12:30 pm.

111 *Classical Archeology* (3)

Archeological monuments of classical civilizations, with intensive study of one or more areas selected from architecture, sculpture, painting, or minor arts. **First Session:** MTWThF 4:10-5:30 pm.

207 *Modern Architecture* (3)

The development of modern architecture and building technology in Europe and America from the late 19th century to the present. **Second Session:** MTWThF 4:10-5:30 pm.

246 *Seminar in Classical Art* (3)

Second Session: MWTh 6:10-8 pm.

261 *Theory and Criticism* (3)

The history of theory and criticism in Classical, Medieval, Renaissance, and Modern times. **First Session:** MTWThF 6-7:20 pm.

289-90 *Thesis* (3-3)

First Session: Art 289; **Second Session:** Art 290.

DRAWING, PAINTING, SCULPTURE†, COMMERCIAL ART, AND CERAMICS†

21-22 *Basic Design** (3-3)

The fundamentals of two- and three-dimensional design. **Second Session:** Art 21—MTWThF 9-12 am; Art 22—MTWThF 1-4 pm.

* Art 21-22 is prerequisite to all other studio courses.

† Material fees for courses in ceramics and sculpture are to be paid at the Corcoran School of Art.

- 41 Drawing and Perspective (3)**
An introductory course in object and figure drawing and mechanical perspective.
First Session: MTWThF 9-12 am.
- 51 Ceramics I (3)**
Basic techniques for clay preparation, hand forming, wheel throwing, and the application of slip glazes and vitreous glazes through workshop and illustrated lectures. Material fee, \$25. **First Session:** MTWThF 9-12 am.
- 57 Introduction to Graphic Techniques (3)**
Exploration of the methods of intaglio, relief, serigraphy, and other composite methods. Studio fee, \$10. **Second Session:** MTWThF 9-12 am.
- 65 Drawing and Painting I—Life, Still Life, and Portrait (3)**
Primarily for nonmajors. **First Session:** MTWThF 9-12 am.
- 81-82 Sculpture I (3-3)**
Material fee, \$6 each half. **First Session:** Art 81—MTWThF 9-12 am; Art 82—MTWThF 9-12 am.
- 123-24 Design Workshop (3-3)**
Exploration of design possibilities in wood, metal, textile, plastics, and other materials with special emphasis on the problems for teachers in the field. Studio fee, \$10 each half. **First Session:** Art 123—MTWThF 9-12 am; Art 124—MTWThF 1-4 pm.
- 125-26 Drawing and Painting II—Life, Still Life, and Portrait (3-3)**
First Session: Art 125—MTWThF 9-12 am; Art 126—MTWThF 9-12 am.
- 131 Ceramics II (3)**
Basic techniques in clay and glaze formation, advanced wheel throwing and hand forming, mosaic. Practical experience in display. Individual projects in a choice of techniques, and experimentation in the possibilities and limitations of the medium. Oxidation firing, ceramic design, current directions of the studio potter, research in studio procedures and equipment. Material fee, \$30. **First Session:** MTWThF 9-12 am.
- 151 Ceramics III (3)**
Advanced glaze calculation, experimentation in reduction firing, individual problems in formation techniques, and problems in series production for the studio artist. Advanced decorating and finishing techniques. Studio teaching techniques and marketing procedures. Material fee, \$30. **First Session:** MTWThF 9-12 am.
- 175 Advanced Design and Composition (3)**
Advanced problems in creative design and composition. **First Session:** MTWThF 9-12 am.
- 179-80 Sculpture II (3-3)**
Portrait life modeling and composition in clay; plaster and wood carving. Material fee, \$6 each half. **First Session:** Art 179—MTWThF 9-12 am; Art 180—MTWThF 9-12 am.
- 189-90 Sculpture III (3-3)**
Advanced problems in modeling and direct carving. Prerequisite: 18 semester hours of sculpture. Material fee, \$6 each half. **First Session:** Art 189—MTWThF 9-12 am; Art 190—MTWThF 9-12 am.
- 251 Ceramics IV (3)**
Material fee, \$30. **First Session:** MTWThF 9-12 am.
- 253 Ceramics V (3)**
Material fee, \$30. **First Session:** MTWThF 9-12 am.
- 265-66 Painting IV (3-3)**
First Session: Art 265—MTWThF 9-12 am; Art 266—MTWThF 9-12 am.
- 275 Painting V (3)**
First Session: MTWThF 9-12 am.

- 279 *Sculpture IV* (3)
Material fee, \$6. First Session: MTWThF 9-12 am.
- 281 *Sculpture V* (3)
Material fee, \$6. First Session: MTWThF 9-12 am.
- 299-300 *Thesis* (3-3)
First Session.

COURSE OFFERED IN SPECIAL PROGRAM

June 30 to July 21

- 161 *Workshop in Ceramics* (3)
Proper use of ceramic equipment, study of ceramic materials, class projects for varying age groups. Material fee, \$25. MTWThF 9 am-4 pm.

MUSIC HISTORY AND LITERATURE AND MUSIC THEORY

- 3 *Introduction to Music* (3)
An introduction to the historical sequences of musical style, the elements of music, and the media of musical presentation. First Session: MTWThF 1:10-2:30 pm.
- 4 *Survey of Music Literature and Forms* (3)
General study of musical forms, structures, and textures as well as the works of the principal composers. Second Session: MTWThF 1:10-2:30 pm.
- 103-4 *History of Music* (3-3)
The development of music in the Western World. Music 103--from the early Christian Era to 1600. Music 104--from 1600 to the present. First Session: Music 103--MTWThF 11:10 am-12:30 pm; Second Session: Music 104--MTWThF 11:10 am-12:30 pm.

APPLIED MUSIC

- 11 *Piano* (1)
Individual lessons. Studio fee, \$40. An 8-week course: June 16 to August 7, hours to be arranged.
- 13 *Voice* (1)
Individual lessons. Studio fee, \$40. An 8-week course: June 16 to August 7, hours to be arranged.
- 15 *Organ* (1)
Individual lessons. Studio fee, \$40. An 8-week course: June 16 to August 7, hours to be arranged.
- 17 *Orchestral Instrument* (1)
Individual lessons. Studio fee, \$40. An 8-week course: June 16 to August 7, hours to be arranged.
- 111 *Piano* (1)
Individual lessons. Studio fee, \$40. An 8-week course: June 16 to August 7, hours to be arranged.
- 113 *Voice* (1)
Individual lessons. Studio fee, \$40. An 8-week course: June 16 to August 7, hours to be arranged.
- 115 *Organ* (1)
Individual lessons. Studio fee, \$40. An 8-week course: June 16 to August 7, hours to be arranged.
- 117 *Orchestral Instrument* (1)
Individual lessons. Studio fee, \$40. An 8-week course: June 16 to August 7, hours to be arranged.

BOTANY

BIOLOGY*

1-2 *Introductory Biology* (4-4)

This course is designed to provide the nonscience student with an understanding of the life sciences and to serve as a basis for those who may wish to continue in some aspect of biology. It is the introductory course leading to all second- and third-group courses in botany and zoology, and is taught jointly by the staff members of the two departments. Designed to be taken in either sequence: students may start with either Biology 1 or Biology 2. Material fee, \$10 for each half. Biology 1—*Plant Sciences* (4); Biology 2—*Animal Sciences* (4). **First Session:** Biology 1—MTWThF 9:40 am-1 pm; Biology 2—MTWThF 6 9:20 pm. **Second Session:** Biology 1—MTWThF 6-9:20 pm; Biology 2—MTWThF 9:40 am-1 pm.

BOTANY*

104 *Field Botany—Lower Plants* (3)

A course primarily for nonspecialists, emphasizing algae, mosses, and ferns. Prerequisite: Biology 1-2 or permission of the instructor. **First Session:** MTWThF 9:40-11 am; field trip—to be arranged.

127 *Genetics*† (3)

A lecture course in which the general principles are illustrated with specific examples of inheritance in plants and animals, including man. **Second Session:** MTWThF 6-7:20 pm.

295-96 *Research* (arr.)

First Session: Botany 295; **Second Session:** Botany 296. Hours, credits, and fees to be arranged.

299-300 *Thesis* (3-3)

First Session: Botany 299; **Second Session:** Botany 300.

BUSINESS ADMINISTRATION (See Government and Business, page 38).

BUSINESS AND PUBLIC ADMINISTRATION (See Government and Business, pages 37-38).

CHEMISTRY

3-4 *Fundamentals of Physical Sciences* (4-4)

A year course: credit is not given for Chemistry 3 until Chemistry 4 is completed. Introduction to methods and achievements of physical science, covering selected topics in chemistry, physics, astronomy, and geology. For nonscience majors. Laboratory fee, \$11 each session. **First Session:** Chemistry 3; **Second Session:** Chemistry 4. MWF 8:10 am-12:30 pm and TTh 8:10-9:30 am.

11-12 *General Chemistry* (4-4)

A year course: credit is not given for Chemistry 11 until Chemistry 12 is completed. Elementary course in general chemistry. Prerequisite: one year of high school algebra. Laboratory fee, \$18 each session. **First Session:** Chemistry 11; **Second Session:** Chemistry 12. MTWThF 8:10 am-12:30 pm.

* Biology 1-2 is prerequisite to all other courses in Botany, except by permission of the instructor.

† An interdepartmental course offered by the departments of Botany and Zoology. The student may register in either department.

21 Qualitative Inorganic Analysis (4)

Theoretical and practical study of methods of separating and identifying the more common cations and anions using semi-micro techniques. Prerequisite: Chemistry 12 or 15, or a placement examination which may be waived at the discretion of the instructor. Laboratory fee, \$18. **First Session:** MTWThF 8:10 am-12:30 pm.

22 Quantitative Inorganic Analysis I (4)

Theory and practice of quantitative analysis by typical volumetric and gravimetric procedures. Prerequisite: Chemistry 21. Laboratory fee, \$18. **Second Session:** MTWThF 8:10 am-12:30 pm.

111 Physical Chemistry Lectures (3)

First half of a full-year course. Introduction to physical chemistry. Prerequisite: either (1) Chemistry 22 and 152, Mathematics 22 or former 30, Physics 13 or 15, or (2) Chemistry 21, Mathematics 22 or former 30, Physics 14. **First Session:** MTWThF 6-7:20 pm.

113 Physical Chemistry Laboratory (2)

First half of a full-year course. Laboratory to accompany Chemistry 111. Students registering for Chemistry 113 must register concurrently for Chemistry 111 unless they have credit for lectures in physical chemistry. Laboratory fee, \$18. **First Session:** MTWThF 1:10-4:20 pm.

151-152 Organic Chemistry (4-4)

A year course: credit is not given for Chemistry 151 until Chemistry 152 is completed. Chemistry of the compounds of carbon. Prerequisite*: Chemistry 21. Laboratory fee, Chemistry 151, \$12; Chemistry 152, \$20. **First Session:** Chemistry 151; **Second Session:** Chemistry 152. MTWThF 8:10 am-12:30 pm.

295-296 Research (arr.)

Research on problems approved by the staff. Open to qualified students with advanced training. Laboratory fee, \$7.50 a semester hour. **First Session:** Chemistry 295; **Second Session:** Chemistry 296. Hours and credits to be arranged.

299-300 Thesis (3-3)

Laboratory fee, \$18 each session. **First Session:** Chemistry 299; **Second Session:** Chemistry 300. Hours to be arranged.

CHINESE (Mandarin)**31-32 First-year Chinese (3-3)**

A year course: credit is not given for Chinese 31 until Chinese 32 is completed. For beginners. Pronunciation, conversation, reading, writing basic Chinese characters. Aural training, oral practice in electronic language workshop. Workshop fee, \$6 each session. **First Session:** Chinese 31; **Second Session:** Chinese 32. Lecture—MTWThF 7:30-8:50 pm; workshop†.

ECONOMICS‡**1-2 Principles of Economics‡ (3-3)**

Survey of the major economic principles, institutions, and problems in contemporary life. Economics 1 is prerequisite to Economics 2. **First Session:** Economics 1 Section A—MTWThF 9:40-11 am, Section B—MTWThF 6-7:20 pm; Economics 2—MTWThF 7:30-8:50 pm. **Second Session:** Economics 1—MTWThF 8:10-9:30 am; Economics 2 Section A—MTWThF 9:40-11 am, Section B—MTWThF 6-7:20 pm.

* This prerequisite may be waived in the case of the student who has earned a grade of C or better in Chemistry 12 or 15 within the past two years or by a placement examination.
† For workshop sections, see Hourly Schedule, pages 61-68.
‡ Economics 1-2 is prerequisite to all other courses in Economics.

101-2 Economic Analysis (3-3)

Analysis of demand, supply, and pricing; theory of national income determination.
First Session: Economics 101—MTWThF 8:10-9:30 am. **Second Session:** Economics 102—MTWThF 11:10 am-12:30 pm.

121 Money and Banking (3)

Theory of money, credit, and banking; commercial banking and the Federal Reserve System; other financial institutions; international aspects of money; current financial problems. **First Session:** MTWThF 11:10 am-12:30 pm.

299-300 Thesis (3-3)

First Session: Economics 299. **Second Session:** Economics 300.

EDUCATION (See pages 56-60).**ENGLISH****ENGLISH COMPOSITION*****A English for Foreign Students (3)**

A course in reading and writing to assist the foreign student in overcoming deficiencies in the use of English. Special attention is given to spelling, syntax, grammar, idioms, and vocabulary. **First Session:** MTWThF 6-7:20 pm.

B English for Foreign Students (3)

For second-semester foreign students not ready for English 1. Writing of expository paragraphs and themes; outlining; reading for comprehension, vocabulary, and style. **First Session:** MTWThF 7:30-8:50 pm. **Second Session:** MTWThF 6-7:20 pm.

1 English Composition* (3)

Review of grammar, exercises in composition, readings. **First Session:** MTWThF 9:40-11 am.

1X English Composition* (3)

An intensive course in English grammar and composition to which are assigned students whose placement tests show them inadequately prepared for the regular work of English 1. The course begins with detailed instruction, drill, and exercises in the basic structure of the English language and in the writing of paragraphs; it continues with the content of English 1. English 1X meets ten hours a week and carries 3 semester hours of credit. The total fee is \$133 (the tuition fee of \$108, plus an additional fee of \$25). **First Session:** MTWThF 9:40-11:50 am.

2 English Composition* (3)

For second-semester freshmen not following the Columbian College of Arts and Sciences sequence. Readings and practice in expository and argumentative techniques and in research procedure. Prerequisite: English 1 or 1X. **Second Session:** MTWThF 9:40-11 am.

4 English Composition* (3)

The second half of the six-hour English Composition course required of students in Columbian College. A course in critical analysis and practice in expository and argumentative techniques and in research procedure. Prerequisite: English 1 or 1X in both semesters of one of the introductory literature courses. **Second Session:** MTWThF 11:10 am-12:30 pm.

* Before students are registered in English 1, they are tested in the minimum essentials of vocabulary, spelling, grammar, standard usage, and writing skill. Those students who show marked superiority may, upon passing further tests, be exempted from one or both halves of the English Composition course; those who are inadequately prepared are assigned to English 1X.

All students enrolled in curricula leading to Bachelor's degrees in Columbian College (who are required to take one year of English composition and one year of literature in English, Classical Languages, French, German, Slavic Languages, or Spanish) will follow the sequence of English 1 or 1X in both semesters of one of the introductory literature courses, and English 4.

English 1 or 1X is prerequisite to all other courses in English. English 2 is the second half of the six-hour composition course requirement of students not required to follow the Columbian College Arts and Sciences sequence.

ENGLISH LITERATURE

- 51-52 *Introduction to English Literature** (3-3)
 Historical survey: English 51, from beginnings to 1800; English 52, since 1800. Prerequisite: English 1 or 1X. First Session: English 51—MTWThF 6-7:20 pm; English 52—MTWThF 7:30-8:50 pm. Second Session: English 52—MTWThF 6-7:20 pm.
- 92 *Introduction to European Literature** (3)
 Consideration of various types. Prerequisite: English 1 or 1X. Second Session: MTWThF 2:40-4 pm.
- 121 *English Literature Prior to Chaucer* (3)
 Second Session: MTWThF 1:10-2:30 pm.
- 141 *The Neoclassical Movement* (3)
 Poetry and Prose from 1660 to 1740. First Session: MTWThF 8:10-9:30 am.
- 165 *The 20th Century* (3)
 British poetry since 1900. Second Session: MTWThF 9:40-11 am.
- 183 *The English Drama* (3)
 Concerned principally with the drama of Shakespeare's contemporaries. First Session: MTWThF 9:40-11 am.
- 235 *Studies in Shakespeare and His Contemporaries* (3)
 Prerequisite: English 135-36. Second Session: MWF 8:10-10 pm.
- 266 *Studies in 20th Century Literature* (3)
 Eliot and his contemporaries. First Session: MWF 8:10-10 pm.

AMERICAN LITERATURE

- 71-72 *Introduction to American Literature** (3-3)
 Historical Survey: English 71, from the beginnings to the Civil War; English 72, from the Civil War to the present. Prerequisite: English 1 or 1X. First Session: English 71—MTWThF 8:10-9:30 am; English 72—MTWThF 9:40-11 am. Second Session: English 72—MTWThF 8:10-9:30 am.
- 170 *The American Short Story* (3)
 The historical development of the short story in America. First Session: MTWThF 6-7:20 pm.
- 171 *Studies in American Literature* (3)
 Major factors in the national cultural tradition as shown by outstanding writers. First Session: MTWThF 11:10 am-12:30 pm.
- 173 *Major American Poets* (3)
 Advanced critical study of significant writers and movements, from beginnings through 19th century. First Session: MTWThF 2:40-4 pm.
- 174 *Major American Poets* (3)
 The 20th century. Second Session: MTWThF 2:40-4 pm.
- 176 *American Drama* (3)
 Historical and critical study of 20th century drama. Second Session: MTWThF 11:10 am-12:30 pm.

* All students enrolled in curricula leading to Bachelor's degrees in Columbian College (who are required to take one year of English composition and one year of literature in English, Classical Languages, French, German, Slavonic Languages, or Spanish) will follow the sequence of English 1 or 1X. English 51-52, 71-72, 91-92, Classical Languages 71-72, French 51-52, German 51-52, Slavonic Languages 91-92, or Spanish 51-52 is prerequisite to all second-group courses.

277 *Studies in American Fiction* (3)

Prerequisite: English 177-78 or the equivalent. Open to undergraduates with the approval of the instructor. First Session: MWF 6:10-8 pm.

ENGLISH INSTITUTE

(English 209)

July 13 to August 21

Modeled on the curriculum established by the Commission on English of the College Entrance Examination Board, the Institute offers classes daily in the areas of literature, language, and composition, plus three workshops each week. The program carries 6 semester hours of credit applicable toward graduate degrees in English or Education. Enrollment limited. (Detailed information is available in the Office of the Dean of the Summer Sessions.)

FRENCH (See Romance Languages and Literature, pages 47-48).

GEOGRAPHY AND REGIONAL SCIENCE

The Department has arranged for this summer a special program focusing on Western Europe. The instructional staff consists of a group of internationally known specialists in various aspects of Western European geography. It consists of:

Samuel Van Valkenburg, Emeritus Director of the Graduate School of Geography, Clark University

Myron L. Koenig, Dean of the School of Foreign Affairs of the Foreign Service Institute, Department of State

Edward Allen, Chief Economist, Central Intelligence Agency

Jacques J. Reinsteinst, former Minister for Economic Affairs, American Embassy, Paris

Lewis M. Alexander, Professor of Geography, University of Rhode Island

One of the special features of the summer program is the field trip to Western Europe, to be led by Dr. Van Valkenburg. Students who have had previous college work in geography may register for this course (169-70); however, the field experience will be richer and more meaningful for those students who register for one or two of the courses in the First Session.

Information concerning the special summer program on Western Europe is available at the Summer Sessions Office.

139 *The Common Market* (3)

Analysis of the forces leading to the economic movement toward Western European cooperation and unity; the present status; problems, trends; the outlook for future development; American interests and American policies. Second Session: TTh 6:10-8:30 pm. Reinsteinst

144 *Cultural Backgrounds of Western Europe* (3)

Cultural backgrounds of Western European nations, with emphasis on the geographical areas and cultural developments which have the greatest impact on the Western world today; significance of these factors to an understanding of contemporary American culture and the United States power position. First Session: TTh 6:10-8:30 pm. Koenig

153 *Western Europe* (3)

Regional geography of Western Europe: terrain, climate, population, economic activities, regions. First Session: MWF 8:10-10 am. Van Valkenburg

- 169-70 *Field Trip to Western Europe* (6) Van Valkenburg
Five weeks of lectures, illustrated by visiting the places as they are discussed; covering physical, economic, political, and social geography. Countries included in the 1964 *Field Trip to Western Europe* are: England, The Netherlands, Belgium, France, Italy, Switzerland, and West Germany. Details are available at the Summer Sessions Office. **Second Session.**
- 243 *Seminar: Political Geography of Western Europe* (3) Van Valkenburg
Discussions centering on the political entities of Western Europe: their structure and character, their interplay, their problems. **First Session:** TTh 1:10-3 pm.
- 244 *Seminar: Western Europe in the North Atlantic Community* (3) Alexander
Western Europe's role in the North Atlantic Community, geographic backgrounds, forces for unity and diversity in Western Europe and in the Community. **Second Session:** TTh 8:10-10 am.
- 245 *Seminar: the Strategic Importance of Western Europe* (3) Allen
Analysis of the economic factors which underpin Western Europe's present and potential strategic importance; the military and political factors of her power position in the world setting. **First Session:** TTh 8:10-10 am.

GEOLOGY

- 1-2 *Introductory Geology* (3-3)
A survey course covering the principles of geology. Geology 1 is not prerequisite to Geology 2. Laboratory fee, \$6 each session. **First Session:** Geology 1—physical geology: materials of the earth's crust, geologic processes; **Second Session:** Geology 2—historical geology: geologic periods, evolution of life on earth. **Lecture—MTWThF 9:40-11 am; Laboratory—MTWThF 11:10 am-12:50 pm.**
- 103 *Development of Scientific Thought* (3)
Lectures on the interrelations between human environment and the formulation of scientific thought, with emphasis on the earth sciences. **First Session:** MTWThF 1:10-2:30 pm.

GERMANIC LANGUAGES AND LITERATURES

- 1-2 *First-year German** (3-3)
A year course: credit is not given for German 1 until German 2 is completed. The essentials of German grammar; translation of easy prose. Aural training, oral practice in electronic language workshop. Workshop fee, \$6 each session. **First Session:** German 1; **Second Session:** German 2. **Lecture:** Section A—MTWThF 9:40-11 am, Section B—MTWThF 6-7:20 pm; workshop†.
- 3-4 *Second-year German** (3-3)
A year course: credit is not given for German 3 until German 4 is completed. Selections from modern German prose; continuation and review of grammar. Aural training, oral practice in electronic language workshop. Workshop fee, \$6 each session. **Prerequisite:** German 1-2 or two years of high school German. **First Session:** German 3; **Second Session:** German 4. **Lecture:** Section A—MTWThF 9:40-11 am, Section B—MTWThF 7:30-8:50 pm; workshop†.
- 47 *Beginning German for Reading Examination Candidates* (0)
This course carries no credit. Tuition fee, \$108 for all students except doctoral candidates. **First Session:** MTWThF 7:30-8:50 pm.

* A standardized placement examination administered at registration is required of all entering students who wish to continue in college the language begun in high school. Upon completion of the examination assignment is made to the appropriate course with credit assigned on the usual basis.

† For workshop sections, see the Hourly Schedule, pages 61-62.

49 German Readings for Nonmajor Students (3)

Primarily for students preparing for reading examinations. Undergraduates admitted with permission of the instructor. No academic credit for graduate students. Prerequisite: German 4 or German 47, or the equivalent. Second Session: MTWThF 7:30-8:50 pm.

51-52 Introduction to German Literature (3-3)

Prerequisite: German 4 or the equivalent. First Session: German 51; Second Session: German 52. MTWThF 6-7:20 pm.

HEALTH CARE ADMINISTRATION (See Government and Business, pages 38-39).

GOVERNMENT AND BUSINESS

ACCOUNTING

1-2 Introductory Accounting (3-3)

Accounting 1: basic principles underlying accounting records, preparation of the work sheet and financial statements, accounting for single proprietorships and partnerships. Accounting 2: accounting for corporations and introduction to cost accounting, analysis of financial statements, and valuation and amortization problems. Prerequisite to Accounting 2: Accounting 1 or permission of the instructor. First Session: Accounting 1 Section A—MTWThF 11:10 am-12:30 pm, Section B—MTWThF 6-7:20 pm; Second Session: Accounting 1—MTWThF 6-7:20 pm; Accounting 2—MTWThF 6-7:20 pm.

101 Cost Accounting (3)

Theory and purposes of industrial cost accounting; treatment of systems of cost control and determination; and analysis and interpretation of cost data. Prerequisite: Accounting 1-2. Second Session: MTWThF 8:10-9:30 am.

111 Financial Statement Analysis (3)

Methods and techniques of preparing, analyzing, and interpreting financial statements for the guidance of operating executives, directors, stockholders, and creditors; influence of price level changes on accounting data; determination and interpretation of trends and ratios. Prerequisite: Accounting 1-2 or permission of the instructor. First Session: MTWThF 9:40-11 am.

115 Survey of Accounting (3)

Accounting for single proprietorships and corporations with emphasis on the use of accounting information in the management process; study of theory, terminology, and the analysis and interpretation of accounting data. Not open for credit to Accounting or Business Administration majors. Both Sessions: MTWThF 7:30-8:50 pm.

132 Accounting Theory (3)

Development of basic accounting principles and concepts with special reference to current thought expressed by the American Institute of Certified Public Accountants and the American Accounting Association. Prerequisite: 6 hours of accounting. First Session: MTWThF 7:30-8:50 pm.

171 Auditing (3)

Duties and responsibilities of auditors; principles and procedures of making audits; techniques of verifying each financial statement item, preparation of audit working papers and reports. Prerequisite: Accounting 121-22. Second Session: MTWThF 6-7:20 pm.

191 Advanced Accounting (3)

Consolidated statements, statement of affairs, realization and liquidation reports, and estate and trust accounting. Prerequisite: Accounting 121-22. First Session: MTWThF 6-7:20 pm.

193 Business Budgeting (3)

Principles, techniques, and procedures involved in the development, installation, and operation of a system of budgetary control to aid in the management of commercial and industrial organizations. Prerequisite: Accounting 1-2. First Session: MTWThF 8:10-9:30 am. Second Session: MTWThF 7:30-8:50 pm.

212 Managerial Accounting (3)

A survey of internal accounting controls, commercial budgets, and cost accounting systems used by management in directing and controlling a business. Prerequisite: Accounting 211 or permission of the instructor. First Session: MWF 6:10-8 pm.

275 Internal Control and Auditing (3)

Internal accounting controls; review and appraisal of accounting systems, procedures, and managerial policies with respect to their effectiveness and profitableness. Emphasis on the use of internal control and auditing as an aid to management. Prerequisite: Accounting 171 or permission of the instructor. Second Session: MWF 6:10-8 pm.

299-300 Thesis (3-3)

First Session: Accounting 299; Second Session: Accounting 300.

COURSE OFFERED IN SPECIAL PROGRAM

In addition to the regular courses announced above, the University offers the following accounting course for students enrolled in the Navy Graduate Financial Management Program.

3 General Accounting (3)

Study of accounting systems and accounting for single proprietorships and corporations, with emphasis on accounting theory, terminology, and the analysis and interpretation of accounting data. June 8 to July 31: hours to be arranged.

BUSINESS AND PUBLIC ADMINISTRATION**201 Advanced Administrative Management (3)**

An advanced course in administration emphasizing principles and practices common to administrative units of all kinds. First Session: MWF 6:10-8 pm.

206 Personnel Management (3)

For students in the Health Records Administration program if enrolled in the spring semester. Basic principles; structure and organization of personnel offices; responsibilities; inter-agency relationships; personnel staffing, training, and work measurement. An 8-week course: June 16 to August 7—TTh 8:10-10 pm.

207-8 Human Factors in Administration (3-3)

Individual, group, intergroup, and other human behavior and development; application of social science research to administration. Practical applications will be emphasized. First Session: Business and Public Administration 207; Second Session: Business and Public Administration 208. MWF 6:10-8 pm.

262 Contemporary Administrative Theory and Practice (3)

Current theories and trends in management with particular attention to the behavioral sciences communications and applicability of research. An 8 week course: June 16 to August 7—TTh 6:10-8 pm.

COURSE OFFERED IN SPECIAL PROGRAM

In addition to the regular courses announced above, the University offers the following business and public administration course for students enrolled in special programs.

268 Management Engineering (3)

For students in the Air Force Advanced Management program only. Analysis of the techniques for initiation and implementation of management engineering programs with emphasis on organization and methods surveys, including the study of work measurement, work simplification, management audits, and other management improvement programs. **June 8 to July 31: hours to be arranged.**

BUSINESS ADMINISTRATION**102 Fundamentals of Management (3)**

Planning, organizing, directing, coordinating, and controlling the activities of the administrative unit; evolution of management thinking. **First Session: MTWThF 9:40-11 am.**

105 Personnel Management (3)

Industrial personnel and manpower programs, organization and policy in personnel activities. **First Session: MTWThF 6-7:20 pm.**

131 Business Finance (3)

Basic principles involved in the financing of business enterprises. Prerequisite: Accounting 1-2. **Second Session: MTWThF 8:10-9:30 am.**

141 Basic Marketing (3)

An introduction to marketing and marketing management in relation to our total economy and business management, consumer and demand analysis, retailing, wholesaling, major marketing management problems and policies with particular emphasis on major decision areas and tools. Prerequisite: Economics 1-2. **Second Session: MTWThF 9:40-11 am.**

161 Commercial Law: Contracts, Sales, Agency, and Bailments (3)

First Session: MTWThF 12:40-2 pm.

162 Commercial Law: Negotiable Instruments, Property, Mortgages (3)

Second Session: MTWThF 12:40-2 pm.

232 Seminar in Business Finance (3)

Research in advanced financial problems. An 8-week course. **June 16 to August 7—TTh 6:10-8 pm.**

291 Seminar in Business Management (3)

Research on various phases of management as practiced in American industry. **First Session: MWF 8:10-10 pm.**

299 Thesis Seminar (3)

An examination of thesis standards, research philosophy, and methodology. **First Session: MWF 8:10-10 pm.**

300 Thesis (3)

Second Session: hours to be arranged.

COURSE OFFERED IN SPECIAL PROGRAM

In addition to the regular courses announced above, the University offers the following business administration course for students enrolled in special programs.

107 Labor-Management Contracts (3)

For students in the Air Force Advanced Management program only. Management's role in the negotiation and administration of collective bargaining agreements, as essential to development of good labor-management relations. **June 8 to July 31: hours to be arranged.**

HEALTH CARE ADMINISTRATION**270 Research in Health Care Administration (3)**

Research in an assigned area dealing with Health Care Administration. **First Session: as arranged.**

285-86 Readings in Health Care Administration (3-3)

Advanced studies in various aspects of community health and hospital administration, and selected aspects of medical care. Admission by permission of the coordinator.

Both Sessions: hours to be arranged.

293 Hospital Residency I (3)

First third of the twelve-month residency, beginning June 1 or July 1 of each year. has four major objectives: work experience under a qualified preceptor; periodic seminars with University staff; periodic written progress reports of work accomplished; and a final written report of a major investigation.

296 Hospital Residency II (3)

First third of a twelve-month residency, beginning June 1 or July 1 of each year. For selected students who take a second year of residency.

PUBLIC ADMINISTRATION**211 Problems of Governmental Organizations (3)**

Analysis of the application of organizational theories and practices to government agencies, with particular emphasis on internal organization and control. Special problem areas are examined, such as decentralization, staff line and field headquarters relationships, and the role of committees. **First Session:** MWF 6:10-8 pm.

233 Seminar in Manpower Development and Utilization (3)

Research projects and case studies in ways and means of increasing employee potential, use of training programs, executive development, incentive systems. **Second Session:** MWF 6:10-8 pm.

251A Governmental Budgeting (3)

The role of budgeting in management; the principles and practices of budgetary formulation and administration. **Second Session:** MWF 8:10-10 pm.

252 Seminar in Planning and Programming (3)

The administrative processes of planning and programming in government, relationship to budgeting, planning and programming as a basis of managerial control, evaluation of accomplishments. This course is primarily for students who have completed Public Administration 251. **First Session:** MWF 8:10-10 pm.

297 Seminar in Public Administration (3)

Advanced research on various phases of public administration including methods of policy formulation and control, the application of systems to management, administration problems of bureaucratic relationships. An 8 week course: June 16 to August 7—TTh 6:10-8 pm.

298 Case Studies in Public Administration (3)

Analysis and discussion of problems in public management by use of the case method. An 8-week course: June 16 to August 7—TTh 8:10-10 pm.

299 Thesis (3)

First Session: MWF 8:10-10 pm.

300 Thesis (3)

Second Session: hours to be arranged.

COURSE OFFERED IN SPECIAL PROGRAM

In addition to the regular courses announced above, the University offers the following public administration course for students enrolled in the Air Force Advanced Management Program.

251B Governmental Budgeting (3)

The role of budgeting in management; the principles and practices of budgetary formulation and administration. **June 8 to July 31:** hours to be arranged.

HISTORY

39-40 The Development of European Civilization (3-3)

Primarily for freshmen. History 39: the political, social, economic, and cultural history of the Old World from ancient times to 1715. History 40: from 1715 to the present. **First Session:** History 39—MTWThF 9:40-11 am; History 40—MTWThF 6-7:20 pm. **Second Session:** History 40—MTWThF 9:40-11 am.

71-72 The Development of the Civilization of the United States (3-3)

Primarily for sophomores. History 71: the political, social, economic, and cultural history of the United States in their world setting from 1492 to 1865. History 72: from 1865 to the present. **First Session:** History 71—MTWThF 8:10-9:30 am; History 72—MTWThF 6-7:20 pm. **Second Session:** History 72—MTWThF 8:10-9:30 am.

130 Nationalism (3)

The historical evolution of modern Nationalism. **Second Session:** MTWThF 8:10-9:30 am.

146 History of Russia (3)

Revolution and Soviet rule, 1881-1960. **First Session:** MTWThF 11:10 am-12:30 pm.

151 History of England and Great Britain (3)

A general survey of the development of political, social, and economic institutions of lasting significance in the English speaking world to 1689. **First Session:** MTWThF 1:10-2:30 pm.

164 South America since Independence (3)

Development of the independent South American states in the 19th and 20th centuries. **First Session:** MTWThF 6-7:20 pm.

170 American Colonial History (3)

The settlement of the British colonies, the development of provincial institutions, and the emergence of an American civilization in the 17th and 18th centuries. **First Session:** MTWThF 9:40-11 am.

171-72 Social History of the United States (3-3)

Daily life, institutions, intellectual and artistic achievements of the Agrarian Era, 1607-1861; and the Urban-Industrial Era, 1861 to the present. **Second Session:** History 171—MTWThF 9:40-11 am; History 172—MTWThF 11:10 am-12:30 pm.

175 Political and Constitutional History of the United States (3)

To the eve of the Civil War. **First Session:** MTWThF 11:10 am-12:30 pm.

182 Diplomatic History of the United States (3)

Tendencies toward isolation, expansion, and collectivism; disputes with foreign countries and their settlement; and the activities of the American secretaries of state and diplomatic agents since 1898. **First Session:** MTWThF 9:40-11 am.

187 History of Modern China (3)

Principally since 1800. Traditional system, impact of the West, rebellion and reform, political and intellectual revolutions of the 20th century. **Second Session:** MTWThF 6-7:20 pm.

196 History of East Asia (3)

The civilizations of China and Japan, with emphasis on cultural development and social organization. The traditional societies on the eve of the modern era, and their responses to Western cultural influences since the middle of the 19th century. **Second Session:** MTWThF 4:10-5:30 pm.

291-92 Seminar (3-3)

Prerequisite: approval of the Department. **First Session:** History 291; **Second Session:** History 292. Hours to be arranged.

299-300 Thesis (3-3)

Required of all candidates for the Master's degree specializing in history. **First Session:** History 299; **Second Session:** History 300.

LAW (See pages 53-56).

MUSIC (See Art, page 29).

MATHEMATICS*

3 College Algebra (3)

Exponents and logarithms; linear equations; complex numbers; quadratic equations; introduction to theory of equations; mathematical induction and the binomial theorem; permutations, combinations, and probability; determinants; progressions. Prerequisite: one year each of high school algebra and high school geometry. First Session: MTWThF 6-7:20 pm. Second Session: MTWThF 7:30-8:50 pm.

6 Plane Trigonometry (3)

Prerequisite: two years of high school algebra and one year of high school geometry, or Mathematics 3 (or concurrent registration therefor). First Session: MTWThF 7:30-8:50 pm. Second Session: MTWThF 6-7:20 pm.

9 General Mathematics I (3)

For those students in the School of Education or others electing Mathematics 9 and 10 as a terminal sequence in mathematics. Propositional logic and truth values; the number system, number bases, arithmetical computation; algebraic functions; topics from plane geometry. Prerequisite: two years of high school mathematics. Not open to students who have had former Mathematics 2. First Session: MTWThF 8:10-9:30 am. Second Session: MTWThF 4:10-5:30 pm.

10 General Mathematics II (3)

An introduction to matrices and vector spaces; non-Euclidean geometry; introduction to concepts of the calculus. Prerequisite: Mathematics 9 or former 2. First Session: MTWThF 4:10-5:30 pm. Second Session: MTWThF 9:40-11 am.

15 Finite Mathematics I (3)

Truth value connectives and switching circuits, partitions and counting, probability theory. Prerequisite: two years of high school mathematics. First Session: MTWThF 9:40-11 am.

16 Finite Mathematics II (3)

Vectors and matrices, mathematics of finance and accounting, linear programming, introduction to game theory. Prerequisite: Mathematics 15. Second Session: MTWThF 9:40-11 am.

21 Calculus I (3)

Elementary concepts of analytic geometry. Differentiation and integration of algebraic and trigonometric functions with applications. Prerequisite: Mathematics 3 and 6; or two years of high school algebra, one year of high school geometry, and one-half year of high school trigonometry; or the equivalent. First Session: MTWThF 11:10 am-12:30 pm. Second Session: MTWThF 6-7:20 pm.

22 Calculus II (3)

Differentiation and integration of transcendental functions and applications, conics, parametric equations, techniques of integration. Prerequisite: Mathematics 21. First Session: MTWThF 6-7:20 pm. Second Session: MTWThF 11:10 am-12:30 pm.

23 Calculus III (3)

Vector concepts, improper integrals, solid geometry, partial differentiation and applications. Prerequisite: Mathematics 22. First Session: MTWThF 1:10-2:30 pm. Second Session: MTWThF 7:30-8:50 pm.

* No first-group course in mathematics is available for college credit if the student's previous training in mathematics meets the prerequisite for a higher numbered course.

24 Calculus IV (3)

Multiple integration with application, infinite series, differential equations. Prerequisite: Mathematics 23. **Second Session:** MTWThF 1:10-2:30 pm.

111 Mathematics for Engineers and Physicists I (3)

Differential equations, vector analysis, introduction to matrix algebra. Prerequisite: Mathematics 24 or former 31. **First Session:** MTWThF 11:10 am-12:30 pm.

112 Mathematics for Engineers and Physicists II (3)

Topics for advanced calculus, partial differential equations, and complex variables. Prerequisite: Mathematics 111 or former 132. **First Session:** MTWThF 4:10-5:30 pm.

122 Introduction to Abstract Algebra (3)

First Session: MTWThF 9:40-11 am.

124 Introduction to Matrix Theory (3)

Elementary theory of finite vector spaces, determinants, equivalence, matrices with polynomial elements, similarity of matrices. **Second Session:** MTWThF 11:10 am-12:30 pm.

139 Advanced Calculus I (3)

Limits, continuity, real number system, mean value theorems, partial differentiation, implicit function theorems, transformations, and mappings. **First Session:** MTWThF 6-7:20 pm.

140 Advanced Calculus II (3)

Vector fields, multiple integrals, line and surface integrals, point set theory, theory of integration, improper integrals. Prerequisite: Mathematics 139. **Second Session:** MTWThF 6-7:20 pm.

255 Differential Geometry (3)

First Session: MTWThF 7:30-8:50 pm.

299-300 Thesis (3-3)

First Session: Mathematics 299; **Second Session:** Mathematics 300.

PHILOSOPHY**51-52 Introduction to Philosophy (3-3)**

A critical examination of some of the problems of modern philosophy in relation to scientific and social developments since the Renaissance. **First Session:** Philosophy 51; **Second Session:** Philosophy 52. MTWThF 6-7:20 pm.

113 History of 19th and 20th Century Philosophy (3)

European philosophy from the time of Kant. "Isms" and ideologies at the root of contemporary thought. **Second Session:** MTWThF 9:40-11 am.

131 Ethics (3)

A critical examination of traditional ethical theories from Plato to Ayer. Consideration of the theoretical problems of ethics: the meaning of "good"; the nature of ethical judgment, the justification of ethical standards. The course aims at enabling the student to develop in his own ethical view as a consequence of his greater understanding of moral phenomena. **Second Session:** MTWThF 1:10-2:30 pm.

172 American Philosophy (3)

The philosophies of Peirce, Royce, James, Dewey, and Santayana as representative American thought. **First Session:** MTWThF 1:10-2:30 pm.

193 Topics in Contemporary Philosophy (3)

Intensive study of one selected topic. Topic for summer 1964: Cosmology from myth to science. **First Session:** MTWThF 9:40-11 am.

PHYSICAL EDUCATION FOR WOMEN

COURSE OFFERED IN FIRST 3-WEEK EDUCATION WORKSHOP SESSION

101 *Physical Education in the Elementary School** (3)

Physical growth and development of the child and adolescent. Survey of age characteristics and organization of physical education activities for the various age levels in elementary school, playground, and settlement house programs. Methods and materials of tumbling, games, dance, self testing activities, and body mechanics. **June 15 to 19:** lecture 3:45-5:45 pm.; small group discussions—evening. **June 22 to July 3:** lecture and conference—morning; small group discussions and field work—afternoon.

PHYSICS

11 *Introductory Physics* (3)

An introduction to the phenomena of light, heat, force, energy; introduction to vectors; and the properties of matter. This course may be taken as a terminal course by nonscience students who wish an introduction to the physical sciences. Prerequisite: high school algebra and plane geometry. Material fee, \$11. **First Session:** Section A—lecture, MWF 1:10-2:30 pm.; recitation, TTh 12:10-1 pm.; laboratory MTTh 9:40-12 am. Section B—lecture, MWF 1:10-2:30 pm.; recitation, TTh 1:10-2 pm.; laboratory, MTTh 2:40-5 pm.

12 *Introductory Physics* (3)

Mechanics, wave motion, and sound. Prerequisite: Physics 11. Material fee, \$11. **Second Session:** Section A—lecture, MWF 1:10-2:30 pm.; recitation, TTh 12:10-1 pm.; laboratory, MTTh 9:40-12 am. Section B—lecture, MWF 1:10-2:30 pm.; recitation, TTh 1:10-2 pm.; laboratory, MTTh 2:40-5 pm.

13 *Introductory Physics* (3)

Elementary electricity and magnetism. Prerequisite: Physics 11. Students who have completed trigonometry may take this course concurrently with Physics 12. Material fee, \$11. **Second Session:** lecture, TTh 11:10 am-12:30 pm.; recitation, MWF 11:10 am-12:10 pm.; laboratory, MWF 8:30-11 am.

118 *Introduction to Solid State Physics* (3)

Dielectric and magnetic properties of solids, electron theory of metals, semiconductors, dislocations, and plastic flow. Prerequisite: Physics 113. **Second Session:** MTWThF 6-7:20 pm.

299-300 *Thesis* (3-3)

Fees to be arranged. **First Session:** Physics 299; **Second Session:** Physics 300.

POLITICAL SCIENCE†

1 *Introduction to Government* (3)

Basic principles and problems of political life: theories, forms, and processes of government in the United States and foreign countries. Attention is also given to international relations. **Second Session:** MTWThF 9:40-11 am.

9-10 *Government of the United States†* (3-3)

Political Science 9: structure, powers, and operation of the Federal Government: Congress, the President, and the Supreme Court; elections, political parties, and pressure groups. Political Science 10: state and local governments; civil rights; major functions of government at federal, state, and local levels. **First Session:** Political Science 9—MTWThF 9:40-11 am, Political Science 10—MTWThF 6-7:20 pm. **Second Session:** Political Science 9—MTWThF 11:10 am-12:30 pm; Political Science 10—MTWThF 6-7:20 pm.

* A workshop course requiring the full daytime attention of enrollees. Concurrent registration for another course scheduled in morning or afternoon not permitted.
† Six hours of first-group Political Science courses are prerequisite to all second-group courses.

119 Foundations of American Democracy (3)

Introduction to political thought in the United States from Colonial times to the present. **First Session:** MTWThF 6-7:20 pm.

145 Political Parties and Politics (3)

Organization and operations of political parties in the United States; major and minor parties, bosses and corruption, nominations and elections, influence on President and Congress. **First Session:** MTWThF 11:10 am-12:30 pm.

171 International Politics (3)

Basic forces underlying the conduct of international relations and the formation of foreign policy: power politics, imperialism, collective security, and international cooperation. **Second Session:** MTWThF 6-7:20 pm.

172 International Organization: the United Nations (3)

Development and current operation of international organization within the system of sovereign states with emphasis on the United Nations. **First Session:** MTWThF 6-7:20 pm.

177 Recent Trends in Latin American Politics and Government (3)

Types of government, recent developments, and current political conditions in each of the twenty Latin American republics. **First Session:** MTWThF 7:30-8:50 pm.

279 Reading Course in International Politics (3)

Reading and discussion of basic materials designed to stimulate investigation of problems in the nature and development of international law, politics, and organization. An 8-week course: **June 16 to August 7—MW 6:10-8 pm.**

299-300 Thesis (3-3)

First Session: Political Science 299; **Second Session:** Political Science 300.

PSYCHOLOGY**1 General Psychology* (3)**

The fundamental principles underlying human behavior. **First Session:** Section A—MTWThF 8:10-9:30 am, Section B—MTWThF 6-7:20 pm. **Second Session:** Section A—MTWThF 9:40-11 am, Section B—MTWThF 7:30-8:50 pm.

8 Psychology of Adjustment (3)

(Formerly Psychology 4)

Processes involved in the total adjustment of the individual with emphasis on social environment; development in the individual of adjustment techniques. **First Session:** MTWThF 1:10-2:30 pm. **Second Session:** MTWThF 6-7:20 pm.

22 Introduction to Educational Psychology (3)

Consideration of individual and group differences, adjustments, and the psychology of learning in relation to education and training. **Second Session:** MTWThF 9:40-11 am.

29 Child Psychology (3)

A genetic approach to the study of the child. Special emphasis is placed on the socialization process, learning, and the child's view of the world. **First Session:** MTWThF 11:10 am-12:30 pm.

101 Abnormal Psychology (3)

The causes, diagnosis, treatment, and prevention of the various types of maladjustment and mental disorders. Prerequisite: 6 credits in psychology, or 3 credits in psychology and 6 credits in a biological science. **First Session:** MTWThF 8:10-9:30 am.

* Psychology 1 or 5-6 is prerequisite to all other courses in Psychology. Six credits in first-group courses are prerequisite to all second-group courses.

- 118 Physiological Psychology (3)**
Basic structure and functions of sensory systems, motor systems, central nervous system, autonomic nervous system, and endocrine system with special emphasis upon the relations between physiological functioning and behavior. **Second Session:** MTWThF 1:10-2:30 pm.
- 129 Introduction to Counseling (3)**
A survey of the basic principles, techniques, and procedures as applied to vocational, educational, and personal counseling. **Second Session:** MTWThF 4:10-5:30 pm.
- 131 Psychological Tests (3)**
A survey of psychological tests and their more common uses in business, industry, government, law, medicine, and education. Material fee, \$7. **First Session:** MTWThF 2:40-4 pm.
- 151 Social Psychology (3)**
The social foundations of attitudes and behavior. Individual adjustment to group situations, such as the family, school, fraternity, and occupation. The psychological basis of race prejudice, nationalism, and war. **First Session:** MTWThF 4:10-5:30 pm.
- 193-94 Readings in Psychology (3-3)**
Supervised readings on specific topics in psychology, with conferences, for undergraduate majors. Open only to seniors with 18 or more credits in psychology with a quality-point index of 3.00 or higher. Admission by special permission of the instructor. **First Session:** Psychology 193; **Second Session:** Psychology 194. Hours to be arranged.
- 196 History and Systems of Psychology (3)**
A survey of the contemporary schools of psychology. Prerequisite: 12 credits in psychology. **Second Session:** MTWThF 2:40-4 pm.
- 207 8 Readings in Psychology for Graduate Students (3-3)**
Supervised readings with conferences on specified topics in psychology. Permission of staff member under whom course is to be taken is necessary. **First Session:** Psychology 207; **Second Session:** Psychology 208. Hours to be arranged.
- 212 Personality Evaluation by Projective Techniques (3)**
Primary emphasis upon administration and scoring of the Rorschach Test. Prerequisite: Psychology 233. **Second Session:** MTWThF 2:40-4 pm.
- 220 Seminar: Abnormal Psychology (3)**
An intensive study of selected problems in the field of abnormal psychology. **First Session:** MWTh 4:10-6 pm.
- 225 Seminar: Mental Hygiene (3)**
A study of mental health problems with special attention to needs of counselors, teachers, and others working with children and adolescents. **Second Session:** MWTh 8:10-10 pm.
- 244 Seminar: Job and Worker Analysis (3)**
First Session: MWTh 8:10-10 pm.
- 245 Seminar: Employee Motivation and Morale (3)**
An analysis of organizational behavior, especially with regard to motivation and productivity. The implications of recent research on employee attitudes, the primary group, the effects of various patterns of supervisory leadership, the role of formal and informal organization, and job design. **Second Session:** MWTh 8:10-10 pm.
- 272 Seminar: Theories of Personality (3)**
A survey of the various theories of personality, with emphasis upon theoretical problems and methodology in the field of personality study. **Second Session:** MWTh 6:10-8 pm.
- 281-82 Practicum in Counseling (3-3)**
Supervised practical instruction in agencies doing counseling. Prerequisite: graduate work in counseling. Admission by permission of the Chairman of the Department. **Both Sessions:** hours to be arranged.

283-84 Practicum in Clinical Psychology (3-3)

Supervised practical instruction in agencies doing clinical psychological work. Prerequisite: Psychology 212. Admission by permission of the Chairman of the Department. **First Session:** Psychology 283; **Second Session:** Psychology 284. Hours to be arranged.

289-90 Seminar: Current Research and Theory in Psychology (3-3)

A review and discussion of contemporary research and theory in some advanced and specialized field of psychological study, by leaders in the field. The specific topic will be announced in the Schedule of Classes. **First Session:** Psychology 289—MWT 6:10-8 pm. **Second Session:** Psychology 290—MWT 6:10-8 pm.

295-96 Research in Psychology (arr.)

Both Sessions: hours and credits to be arranged.

299-300 Thesis (3-3)

First Session: Psychology 299; **Second Session:** Psychology 300.

COURSE OFFERED IN FIRST 3-WEEK EDUCATION WORKSHOP SESSION

121 Educational Psychology* (3)

Advanced course in educational psychology. **June 15 to 19:** lecture and conference—late afternoon; small group discussions and field work—evening. **June 20 to July 3:** group discussions and field work—afternoon.

COURSE OFFERED IN ENGINEERING ADMINISTRATION PROGRAM

145 Principles of Human Relations (3)

A basic course in the psychological principles underlying human relations. **First Session:** MTWThF 6-7:20 pm.

PUBLIC ADMINISTRATION (See Government and Business, page 39).

RELIGION

9 The Old Testament (3)

A historical and literary approach to the study of the books of the Old Testament with special consideration given to the development of religious ideas, institutions, and outstanding personalities. **First Session:** MTWThF 6-7:20 pm.

59-60 History of Religion (3-3)

Religion 59: primitive and ancient national religions; Confucianism, Taoism, Buddhism, Hinduism, and Shintoism—their historical setting, founders, and development of religious thought and culture. Religion 60: Judaism, Christianity, and Islam—their origin, evolution, and contemporary status. **First Session:** Religion 59—MTWThF 11:10 am-12:30 pm. **Second Session:** Religion 60—MTWThF 11:10 am-12:30 pm.

105 The Life and Thought of Paul (3)

Greek and Hebrew backgrounds of early Christianity, the Roman world of the first century, religious and social conditions affecting the spread of Christianity, the life and journeys of Paul, Paul's teaching and presentation of the Christian faith, and the place of the Pauline epistles in the New Testament. **First Session:** MTWThF 9:40-11 am.

* Concurrent registration for another morning or afternoon course is not permitted.

122 Christian Ethics and Modern Society (3)

The nature and principles of the Christian life as developed by the Christian community; problems of personal conduct; the application of the Christian standard to family, social, and economic institutions. **Second Session:** MTWThF 6-7:20 pm.

172 Religion in American Culture (3)

Growth of religious bodies and institutions in American culture, the heritage of religious freedom and diversity, religion and literature, revivalism and education, science and religious thought, divisions and cooperative movements in religion. **First Session:** MTWThF 7:30-8:50 pm.

291-92 Readings and Research (3-3)

Investigation of special problems in the history of religion. **First Session:** Religion 291; **Second Session:** Religion 292. Hours to be arranged.

299-300 Thesis (3-3)

First Session: Religion 299; **Second Session:** Religion 300.

ROMANCE LANGUAGES AND LITERATURES

FRENCH*

1-2 First-year French (3-3)

A year course; credit is not given for French 1 until French 2 is completed. For beginners. Pronunciation, conversation, grammar, composition, reading of modern French prose. Aural training, oral practice in electronic language workshop. Workshop fee, \$6 a session. **First Session:** French 1; **Second Session:** French 2. Section A—MTWThF 8:10-9:30 am; Section B—MTWThF 6-7:20 pm; workshop.†

3-4 Second-year French* (3-3)

A year course; credit is not given for French 3 until French 4 is completed. Conversation, grammar, composition, reading of modern French prose, introduction to French civilization. Aural training, oral practice in electronic language workshop. Workshop fee, \$6 a session. Prerequisite: French 1-2 or two years of high school French. **First Session:** French 3; **Second Session:** French 4. Section A—MTWThF 8:10-9:30 am; Section B—MTWThF 6-7:20 pm; workshop.†

9-10 French Conversation and Composition (3-3)

Prerequisite: French 4 or permission of the instructor. **First Session:** French 9; **Second Session:** French 10. MTWThF 9:40-11 am.

49 French Readings for Nonmajor Students (3)

Primarily for graduate students preparing for reading examinations. Undergraduates admitted only with specific permission of the instructor. No academic credit for graduate students. **First Session:** MTWThF 6-7:20 pm.

51-52 Survey of French Literature and Civilization* (3-3)

The social, artistic, and cultural background of French civilization. Lectures, readings, recitations, and informal discussions. **First Session:** French 51; **Second Session:** French 52. MTWThF 4:10-5:30 pm.

109 Advanced French Conversation and Composition (3)

Emphasis on diction. Prerequisite: French 10 or the equivalent and permission of the instructor. **First Session:** MTWThF 1:10-2:30 pm.

250 Romanticism in France (3)

The theory and practice of romanticism in France; romantic love, the Napoleonic myth, exoticism, local color, sensationalism, and religiosity as reflected in new styles of prose and poetry. Romantic criticism. The preparation for realism. **First Session:** MTWThF 4:10-5:30 pm.

299-300 Thesis (3-3)

First Session: French 299; **Second Session:** French 300. Hours to be arranged.

* French 3-4 is required, and French 51-52 is recommended, as prerequisite to all second-group courses.

† For workshop sections, see the Hourly Schedule, pages 61-68.

SPANISH*

1-2 *First-year Spanish* (3-3)

A year course: credit is not given for Spanish 1 until Spanish 2 is completed. For beginners. Pronunciation, conversation, grammar, composition, reading of modern Spanish prose. Aural training, oral practice in electronic language workshop. Workshop fee, \$6 a session. **First Session:** Spanish 1; **Second Session:** Spanish 2. **Section A**—MTWThF 9:40-11 am; **Section B**—MTWThF 7:30-8:50 pm; workshop.†

3-4 *Second-year Spanish** (3-3)

A year course: credit is not given for Spanish 3 until Spanish 4 is completed. Conversation, grammar, composition, reading of modern Spanish prose, introduction to Hispanic civilization. Aural training, oral practice in electronic language workshop. Workshop fee, \$6 a session. **First Session:** Spanish 3; **Second Session:** Spanish 4. **Section A**—MTWThF 9:40-11 am; **Section B**—MTWThF 7:30-8:50 pm; workshop.†

9 10 *Spanish Conversation and Composition* (3-3)

Prerequisite: Spanish 4 or the equivalent and permission of the instructor. **First Session:** Spanish 9; **Second Session:** Spanish 10. MTWThF 8:10-9:30 am.

51-52 *Survey of Spanish Literature and Civilization** (3-3)

The social, artistic, and cultural background of Spanish civilization. Lectures, readings, recitations, and informal discussions. **First Session:** Spanish 51; **Second Session:** Spanish 52. MTWThF 4:10-5:30 pm.

109 *Advanced Spanish Conversation and Composition* (3)

Emphasis on diction. Prerequisite: Spanish 10 or the equivalent and permission of the instructor. **First Session:** MTWThF 1:10-2:30 pm.

129 *The Romantic Drama in Spain* (3)

Class analysis of texts, collateral reading, and lectures on the Spanish Romantic Drama. **First Session:** MTWThF 6-7:20 pm.

226 *The Novel in the Golden Age* (3)

Various manifestations of the novel: chivalric, pastoral, byzantine, with main emphasis on the picaresque. **Second Session:** MTWThF 1:10-2:30 pm.

299-300 *Thesis* (3-3)

First Session: Spanish 299; **Second Session:** Spanish 300. Hours to be arranged.

GENERAL COURSE IN ROMANCE LANGUAGES AND LITERATURES

283 *Problems of Teaching Romance Languages and Literatures in College* (3)

For candidates for the degree of Doctor of Philosophy. Principles and problems of learning and teaching the language and literature. Apprenticeship in college class and the language laboratory. **Second Session:** MTWThF 6-7:20 pm.

RUSSIAN (*See Slavic Languages and Literatures, below*)

SLAVIC LANGUAGES AND LITERATURES

1-2 *First-year Russian* (3-3)

A year course: credit is not given for Russian 1 until Russian 2 is completed. A beginner's course in fundamentals of grammar and pronunciation with graded reading, oral drill, and written practice. Listening comprehension and oral practice in electronic language workshop. Workshop fee, \$6 a session. **First Session:** Russian 1; **Second Session:** Russian 2. Lecture, MTWThF 9:40-11 am; workshop.†

* Spanish 3-4 is required, and Spanish 51-52 is recommended, as prerequisites to all second-year courses.
† For workshop sections, see Hourly Schedule, pages 61-62.

- 109-10 *Advanced Russian Conversation and Composition* (3-3)
Developing proficiency in oral and written expression. **First Session:** Russian 109;
Second Session: Russian 110. MTWThF 6-7:20 pm.

- 161-62 *Russian Culture* (3-3)
A survey of Russian cultural heritage from the origins of ancient Russia to the present.
Lecture, recitation, and individual reports on assigned topics. **First Session:** Russian 161; **Second Session:** Russian 162. MTWThF 7:30-8:50 pm.

SOCIOLOGY AND ANTHROPOLOGY*

SOCIOLOGY

- 2 *Man, Culture, and Society II** (3)
(Formerly Sociology and Anthropology 1)
Development of culture and personality, the impact of groups and institutions on man's social behavior. A survey of the fields within sociology. **Both Sessions:** MTWThF 9:40-11 am.
- 129 *Race and Minority Groups* (3)
Analysis of the relationships between dominant and minority groups in society, particularly in the United States; nature and range of problems; analysis of the phenomenon of prejudice. **Second Session:** MTWThF 7:30-8:50 pm.
- 132 *Courtship and Marriage* (3)
Dating and courtship as social processes, reasons for marriage, marriage laws, mate selection, factors in marital adjustment; prediction and counseling. **Second Session:** MTWThF 11:10 am-12:30 pm.
- 140 *Military Sociology* (3)
The study of the military establishment as one of the important institutions of modern society; an analysis of the distinctive forms of military organization; the social role of the professional military man. **First Session:** MTWThF 6-7:20 pm.
- 299-300 *Thesis* (3-3)
First Session: Sociology 299; **Second Session:** Sociology 300.

ANTHROPOLOGY

- 1 *Man, Culture, and Society I** (3)
(Formerly Sociology and Anthropology 51)
The physical evaluation of man and the origins and development of culture, including a survey of the topic divisions of the field. **First Session:** MTWThF 11:10 am-12:30 pm.
- 153 *Psychological Anthropology* (3)
The relevance of psychoanalytic and learning theories to the cross-cultural study of personality. Cultural determinants of personality formation and mental health. **First Session:** MTWThF 7:30-8:50 pm.
- 289-90 *Thesis* (3-3)
First Session: Anthropology 289; **Second Session:** Anthropology 290.

* Anthropology 1 and Sociology 2 combine to make a year course which is prerequisite to all other courses in Sociology and Anthropology.

SPEECH

A Speech Clinic

Individual or group lessons, without academic credit, for such speech difficulties as lisping, cleft palate, articulatory problems, and stuttering. Fee: for individual lesson, \$7; for group lesson, \$4. Both Sessions: hours to be arranged.

B American Speech for Foreign Students (4)

Class limited to foreign-born students. Instruction in the formation of the sounds of spoken English, with emphasis on rhythm and inflection. The International Phonetic Alphabet is used. Recording fee, \$5. An 11-week course: June 16-August 23—MTWTh 6-7:10 pm.

1 Effective Speaking (3)

Preparation and delivery of extempore speeches, developing confidence and poise, body and voice control; selecting and organizing material. Recording fee, \$2.

First Session: Section A—MTWThF 11:10 am-12:30 pm, Section B—MTWThF 7:30-8:50 pm. Second Session: Section A—MTWThF 9:40-11 am, Section B—MTWThF 6-7:20 pm.

11 Voice and Diction (3)

Developing ease, naturalness, and clarity in the speaking voice. Analysis of individual voices through recordings. Phonetic approach to the study of the sounds of English. The standards of speech. Class instruction in the problems of rate, volume, pitch, and quality. Recording fee, \$4. First Session: Section A—MTWThF 9:40-11 am, Section B—MTWThF 6-7:20 pm. Second Session: Section A—MTWThF 11:10 am-12:30 pm, Section B—MTWThF 7:30-8:50 pm.

32 Oral Reading (3)

Reading to others; theory and practice in the problems of interpreting the printed page. Prerequisite: Speech 11. Recording fee, \$2. First Session: MTWThF 11:10 am-12:30 pm.

121 Group Discussion and Conference Leadership (3)

The process of thinking and problem solving in committees and small groups, and the methods of leading discussions and conferences. Prerequisite: 6 hours of speech or permission of the instructor. First Session: MTWThF 1:10-2:30 pm.

177-78 Clinical Practice in Speech Therapy (1-1)

Supervised case work in remedial speech—the University Speech Clinic, Children's Hospital, District of Columbia Crippled Children's Society, and Public School system. Weekly meetings to discuss therapeutic techniques of the common speech problems. This course may be repeated for a total of 4 semester hours. Prerequisite: Speech 171, 174, and permission of the instructor. First Session: Speech 177; Second Session: Speech 178. Hours to be arranged.

183-84 Clinical Practice in Hearing Therapy (1-1)

Supervised case work with persons handicapped with hearing losses—the University Speech Clinic, the Washington Hearing Society, and Children's Hospital. This course may be repeated for a total of 3 semester hours. Prerequisite: Speech 182 and permission of the instructor. First Session: Speech 183; Second Session: Speech 184. Hours to be arranged.

287 Seminar in Communicology (3)

Extensive study of the theories of etiology of stuttering and therapy procedures. First Session: TWTh 5:30-7:20 pm.

295 Research (arr.)

First Session: hours to be arranged.

299 Thesis (3)

First Session: hours to be arranged.

COURSES OFFERED IN SPECIAL PROGRAMS

June 19 to August 9

157 *Workshop in Producing Shakespeare* (4)

Participation as an apprentice with an Equity Company in the Shakespeare Summer Festival production at the outdoor Sylvan Theatre on the Washington Monument grounds. Class work in the interpretation of Shakespeare culminating in a show case production. Hours arranged with Company rehearsals and performances. Registration limited. Application must be made by May 15. (For detailed information write Shakespeare Summer Festival, Cleveland Park Station, Washington, D. C. 20008.)

July 6 to July 31

285 *Childhood Aphasia* (4)

Designed to acquaint speech therapists and teachers of exceptional children with the McGinnis Association Method of therapy; background lectures dealing with neurological, psychological, and psychiatric aspects of language disorders in children; comparison of current theories and practices in therapy. Observation and clinical practice with classes of aphasic children at the Children's Hospital School for Aphasic Children. Prerequisite: Undergraduate degree in speech and hearing, special education, or allied fields. MTWThF 8:30 am-12:30 pm.

STATISTICS*

51 *Introduction to Business and Economic Statistics** (3)

Survey of elementary principles and procedures for presenting, analyzing, and interpreting statistical data; consideration of characteristic values; measures of variability; sampling processes; index numbers; time series analysis, and simple correlation. Prerequisite: one entrance unit in algebra. Laboratory fee, \$9. First Session: lecture, MWF 9:40-11 am; laboratory, TTh 9:40-11 am and 1 hour to be arranged. Second Session: lecture, MTTh 9:40-11 am; laboratory, WF 9:40-11 am and 1 hour to be arranged.

53 *Introduction to Statistics in Psychology and Education** (3)

Sources of data, tabulation, charts and graphs, averages, dispersion, quartiles and percentiles, raw scores, and derived scores, frequency distributions, reliability and validity of tests, normal curve, correlation, elementary sampling, and an introduction to estimation and tests of hypotheses. Prerequisite: one entrance unit in algebra. Laboratory fee, \$9. Second Session: lecture, MTTh 1:10-2:30 pm; laboratory, WF 1:10-2:30 pm.

91 *Principles of Statistical Methods** (3)

Various attributes, averages and dispersion, frequency distributions and their characteristics, regression and correlation, statistical decision processes. Prerequisite: one entrance unit in algebra. Laboratory fee, \$9. First Session: lecture, MWF 1:10-2:30 pm; laboratory, TTh 1:10-2:30 pm and 1 hour to be arranged.

104 *Statistics in Psychology and Education* (3)

Introductory study of statistical techniques necessary for application of statistics in research problems in psychology and education. Laboratory fee, \$4. First Session: lecture, MTTh 9:40-11 am; laboratory, WF 9:40-11 am and 1 hour to be arranged.

118 *Correlation and the Chi-square Test I* (3)

Regression and correlation theory; simple, partial, and multiple; nonparametric methods; analysis of covariance; contingency table analysis; tests of goodness of fit. Prerequisite: Statistics 91. Laboratory fee, \$9. First Session: lecture, MTTh 1:10-2:30 pm; laboratory, WF 1:10-2:30 pm and 1 hour to be arranged.

* Statistics 51, 53, and 91 are related in their subject matter, and credit hours for only one of the three may be applied toward a degree. Statistics 52 lies outside of this group, and may be taken for degree credit in combination with any one of the other three.

Statistics 91 is for Statistics majors, for students in engineering and in the biological and physical sciences.

197 Digital Computer Programming with Applications (3)

The use of the digital computer in statistical and other computational work. Machine language, SPS and Fortran programming. Writing, debugging, and running programs on the digital computer, using the IBM 1620 in the University Computing Center. Prerequisite: permission of the instructor. **Second Session:** lecture, MTW 1:10-2:10 pm; laboratory, ThF 1:10-3 pm.

297 Seminar: Problems in Mathematical Statistics (3)

First Session: MWTh 4:10-6 pm.

COURSE OFFERED IN SPECIAL PROGRAM

In addition to the regular courses announced above, the University offers the following course in statistics for students enrolled in the special program.

120 Principles of Statistical Analysis (3)

For students in the Air Force Advanced Management Program only. Introduction to the basic concepts of statistical analysis, measures of central tendency, dispersion, normal distribution, basic statistical inference including estimation and testing hypotheses. **June 8 to July 31:** TTh 10:10 am-12:40 pm.

ZOOLOGY**BIOLOGY****1-2 Introductory Biology* (4-4)**

This course is designed to provide the nonscience student with an understanding of sciences and to serve as a basis for those who may wish to continue in some aspect of biology. It is the introductory course leading to all second- and third-group courses in botany and zoology, and is taught jointly by the staff members of the two departments. Designed to be taken in either sequence; students may start with either Biology 1 or Biology 2. **Material fee, \$10 for each half.**

Biology 1—*Plant Sciences* (4); Biology 2—*Animal Sciences* (4).

First Session: Biology 1—MTWThF 9:40 am-1 pm; Biology 2—MTWThF 6:10 am-1 pm. **Second Session:** Biology 1—MTWThF 6:10 am-1 pm; Biology 2—MTWThF 9:40 am-1 pm.

ZOOLOGY**127 Genetics† (3)**

A lecture course in which the general principles are illustrated with specific examples of inheritance in plants and animals. **Second Session:** MTWThF 6-7:20 pm.

145 Introduction to Vertebrate Embryology (3)

Origin and early development of the individual, formation of organ systems—emphasis on the frog, chick, and rat, with reference to the human embryo. **Material fee, \$11. First Session:** MTWThF 6-8:50 pm.

295-96 Research (3-3)

Investigation of special problems. **First Session:** Zoology 295; **Second Session:** Zoology 296. Hours to be arranged.

299-300 Thesis (3-3)

First Session: Zoology 299; **Second Session:** Zoology 300. Hours to be arranged.

* Biology 1-2 is prerequisite to all second-group courses in Zoology except by permission of the instructor.

† An interdepartmental course offered by the departments of Botany and Zoology. Students may take it in either department.

LAW

FIRST SESSION—JUNE 8 TO JULY 22

115 *Contracts I* (2)

Legal remedies of contracting parties, including damages in contract and quasi-contract, specific performance, reformation, rescission, and remedies in tort; acts creating and terminating contractual rights, including offer and acceptance, mistake, and problems of proof; the function of consideration; conditions; assignments; third-party beneficiaries; the effect of changed circumstances; and protection of the client's interests upon breach or threat of breach by the other party. Emphasis on problems of analysis, draftsmanship, and adversary method. Law 115 is prerequisite to Law 116. MT 5:50-8:05 pm.

202 *Administrative Law* (3)

The position of the administrative process in the separation of powers, including the status of administrative personnel, administrative hearings, judicial scrutiny of administrative action, discretion, and rule-making—particularly as relating to federal administrative agencies. MTThF 5:50-7:40 pm.

209A *Business Associations I* (2)

Legal principles concerning association in business by agency, partnership, other unincorporated forms and corporations. Creation, form and nature of agency, partnership and corporation. The purpose of this course is to present basic principles of agency and partnership and introductory related principles of corporation law. TLF 5:50-8:05 pm.

215 *Civil Procedure* (4)

The mechanics of litigation—the rules which govern the process by which the rights and duties studied in substantive law courses are enforced: pleadings, discovery, pre- and post-trial motions, jurisdiction and venue, equity jurisdiction and trial by jury, former adjudication. Emphasis is on the Federal Rules of Civil Procedure but the principles and main problems indigenous to all procedural systems are developed. Section A—MTWThF 10:10-12 am, Section B—MTWThF 5:50-7:40 pm.

255A *Domestic Relations* (2)

Marriage, annulment, and divorce; adoption and custody of children; economic relations. MTWThF 10:10-11 am.

254 *International Law and World Order* (3)

Traditional content of courts in international law presented in context of values and institutions of the world community; formal prescription and effective practice concerning participants in decision-making processes; rules of individuals, international public organizations, political parties, pressure groups, private associations, and national states; analysis of range of available sanctions; the rules and effects of international agreements under the United States Constitution. MTUdF 5:50-7:40 pm.

270 *Legislation* (2)

The legislative process and roles of various participants in the process; operation of the United States Congress and state legislatures, including fact finding, organization, and procedure; problems of statutory interpretation. MTWThF 9:10-10 am.

295 *Trusts and Estates I* (3)

An integrated view of considerations (other than tax) in intergenerational transfers of wealth at death or during life with emphasis on the drafting of documents best suited to achieve the wishes of the property owner and protect the needs of his family. Distribution and administration of testamentary estates; formal requirements for execution of wills and trusts; revocation and correction; grounds for contest; limits on testamentary freedom. Prerequisite to Law 35. Law 1-0. MTTF 2:50-7:40 pm.

309A Conflict of Laws (3)

Legal problems arising from occurrences transcending state or national boundaries; jurisdiction; foreign judgments; constitutional influences; theoretical bases of choice of law principles and their application to specific fields including torts, contracts, property, family law, administration of estates, and business associations. MTWThF 5:50-7:40 pm.

318 Creditors' Rights (3)

Remedies of unsecured creditors; judgments, fraudulent conveyances, creditors' agreements, equity and statutory receiverships, and bankruptcy. The general approach to that of law administration. MTWTh 11:10 am-1 pm.

330 Federal Antitrust Laws (3)

Restraints of trade at common law and under Sherman Antitrust Act of 1890, Federal Trade Commission and Clayton Acts by mergers, monopolies, price-fixing agreements, trade associations, exclusive-dealing agreements, tie-in sales, and trade boycotts; patents and copyrights under antitrust laws. MTThF 5:50-7:40 pm.

376 Restitution (2)

Quasi-contracts, constructive trusts, rescission, and other legal and equitable remedies for restoring property and money which unjustly enriches others at the expense of volunteers, victims of misappropriation, and parties to mistaken contracts. MTWTh 10:10-11 am.

SECOND SESSION—JULY 23 TO SEPTEMBER 5**116 Contracts II (4)**

Legal remedies of contracting parties, including damages in contract and quasi-contract, specific performance, reformation, rescission, and remedies in tort; acts creating and terminating contractual rights, including offer and acceptance, mistake, and problems of proof; the function of consideration; conditions; assignments; third-party beneficiaries; the effect of changed circumstances; and protection of the client's interests upon breach or threat of breach by the other party. Emphasis on problems analysis, draftsmanship, and adversary method. Prerequisite: Law 115. MTWThF 5:50-7:40 pm.

150 Real Property (4)

Historical background of the law of estates and conveyancing; types of estates; joint tenancy and curtesy; landlord and tenant relationship; concurrent estates; future interests at common law and after Statute of Uses; Rule against Perpetuities; incidents of dominion; ownership, as waste; natural rights. MTWThF 5:50-7:40 pm.

209B Business Associations I (2)

Legal principles concerning association in business by agency, partnership, other incorporated forms and corporations. Creation, form and nature of agency, partnership and corporation. The purpose of this course is to present basic principles of agency, partnership and introductory related principles of corporation law. MTWThF 11:10 am-1 pm.

219 Commercial and Investment Paper (3)

Bills of exchange, promissory notes, checks, bonds, certificates of stock, and other forms of commercial and investment paper in the context of their business function and legal setting under the common law and uniform laws, including the proposed Uniform Commercial Code. MTThF 5:50-7:40 pm.

240 Evidence (4)

Preparation and presentation of evidence, including proof of writings; qualifications and examination of witnesses with emphasis on impeachment; privilege; opinion testimony; determination of relevancy; demonstrative, experimental, and scientific evidence; application of the hearsay rule. Section A—MTWThF 10:10-12 am, Section B—MTWThF 5:50-7:40 pm.

251 Insurance (2)

A primary risk distributing medium and the rules by which legislative, administrative, and judicial bodies seek to promote its benefits and avert its dangers. Includes insurance marketing, insurable interest, subrogation, transfer of insurance benefits to non-policyholders, coverage and other insurance policy provisions, disposition of claims. MTWThF 9:10-10 am.

279 Taxation—Federal Income I (3)

Survey of substantive provisions of federal income tax, including concept of gross income, provisions affecting taxation of the family and individual transactions, limitations on allowable deductions, sales and dispositions of property, problems of capital gains taxation, and nontaxable exchanges. MTThF 5:50-7:40 pm.

286 Trust and Estates II (3)

An integrated view of considerations (other than tax) in noncommercial transfers of wealth at death or during life with emphasis on the drafting of documents best suited to achieve the wishes of the property owner and meet the needs of his family. Dispositive provisions in wills and trusts; common problems of construction; future interests questions including class gifts, powers of appointment, and limits imposed by Rule Against Perpetuities, etc.; problems of administration of estates and trusts including allocations to principal or income, investments, powers to manage, sell, etc.; charitable trusts. Supervised practice in drafting is included. Prerequisite to Law 286: Law 285. MTThF 5:50-7:40 pm.

295 Unfair Trade Practices (3)

Unfair trade practices at common law and under statutes; trade marks, trade names; copyright law; misappropriation of ideas; protection of competitors and consumers against false advertising under Federal Trade Commission Act; resale price maintenance under state Fair Trade Acts; state sales below-cost statutes; Robinson-Patman Price Discrimination Act; miscellaneous business practices. MTThF 5:50-7:40 pm.

309B Conflict of Laws (3)

Legal problems arising from occurrences transcending state or national boundaries; jurisdiction; foreign judgments; constitutional influences; theoretical bases of choice of law principles and their application to specific fields, including torts, contracts, property, family law, administration of estates, and business associations. MTWTh 11:10 am-1 pm.

THIRTEEN-WEEK SESSION—JUNE 8 TO SEPTEMBER 5**235B Domestic Relations (2)**

Marriage, annulment, and divorce; adoption and custody of children; economic relations. W 5:50-8:05 pm.

238 Equity (2)

A correlation of aspects of equity considered in earlier courses, and inquiring into the nature of equity jurisprudence through analysis of selected problems in equity: historical development of equity, including problems of merger of law and equity; use of equity jurisdiction offensively and defensively, including multi-party actions, injunction of executive and legal actions, and equitable abstention; emphasis on the fashioning of equitable remedies. W 5:50-8:05 pm.

243 Federal Jurisdiction (2)

Constitutional and statutory origins of federal courts, cases arising under the laws and the Constitution, diversity of citizenship, jurisdictional amount, removal procedure and jurisdiction, limitations on federal jurisdiction, state and federal conflicts, substantive law applied by federal courts. W 5:50-8:05 pm.

359 Patent Law (2)

Origin and nature of patents, patentable subject matter, classes of patents, novelty, utility, invention, patent claims and their interpretation, acts constituting infringement, correction of patents. W 5:50-8:05 pm.

435 Seminar: Selected Problems in Government Contracts (2)

Small group study of selected current problems of major significance in the government contracts field. W 5:50-8:05 pm.

EDUCATION**FIRST 3-WEEK WORKSHOP SESSION—JUNE 15 TO JULY 3****108B Human Development, Learning, and Teaching (3)**

For the general student as well as the prospective teacher. Principles of effective teaching based on an understanding of human development and the nature of learning. Interpretation of tests for evidence purposes. June 15 to 19: lecture—3:45-5:45 pm; small group discussions—evening. June 22 to July 3: lecture and conference—morning; small group discussions and field work—afternoon.

112 Educational Measurement* (3)

Scope, needs, services to students, selection and construction of teacher-made tests, interpretation of tests for evidence purposes. June 15 to 19: lecture—3:45-5:45 pm; small group discussions—evening. June 22 to July 3: lecture and conference—morning; small group discussions and field work—afternoon.

116 Elementary School Social Studies* † (3)

For teachers. Content, methods, materials, and activities essential in the elementary school curriculum. Prerequisite: Education 108 and 123 or teaching experience. June 15 to 19: lecture—3:45-5:45 pm; small group discussions—evening. June 22 to July 3: lecture and conference—morning; small group discussions and field work—afternoon.

120 Elementary School Arithmetic* † (3)

For teachers. Content, methods, materials, and activities essential in the elementary school curriculum. Prerequisite: Education 108 and 123 or teaching experience. June 15 to 19: lecture—3:45-5:45 pm; small group discussions—evening. June 22 to July 3: lecture and conference—morning; small group discussions and field work—afternoon.

227 Basic Issues in Elementary Education* † (3)

A consideration of basic issues in the purposes, organization, and conduct of elementary education. Emphasis on the philosophical and psychological roots of fundamental assumptions as they relate to classroom practices. June 15 to 19: lecture—3:45-5:45 pm; small group discussions—evening. June 22 to July 3: lecture and conference—morning; small group discussions and field work—afternoon.

245 School and Community* † § (3)

The school as an important member of a team of social agencies that builds the community. June 15 to 19: lecture—3:45-5:45 pm; small group discussions—evening. June 22 to July 3: lecture and conference—morning; small group discussions and field work—afternoon.

251 Guidance in Elementary and Secondary Schools* † (3)

A survey course: scope; needs; organization of the program; services to students; the instructional staff, and the administration; personnel needed for the program. June 15 to 19: lecture—3:45-5:45 pm; small group discussions—evening. June 22 to July 3: lecture and conference—morning; small group discussions and field work—afternoon.

* A workshop course requiring the full daytime attention of enrollees. Concurrent registration in another course scheduled in morning or afternoon not permitted.

† This course may not be taken by students who have completed or plan to enroll in Education 116.

‡ Prerequisite: adequate professional preparation.

§ This course may not be taken by students who have completed or plan to enroll in Education 116.

255 Secondary Education* ‡ (3)

Current proposals for the improvement of secondary education. June 15 to 19: lecture—3:45-5:45 pm; small group discussions—evening. June 22 to July 3: lecture and conference—morning; small group discussions and field work—afternoon.

Physical Education 101 Physical Education in the Elementary School* (3)

Physical growth and development of the child and adolescent. Survey of age characteristics and organization of physical education activities for the various age levels in elementary school, playground, and settlement house programs. Methods and materials of tumbling, games, dance, self-testing activities, and body mechanics. June 15 to 19: lecture 3:45-5:45 pm; small group discussions—evening. June 22 to July 3: lecture and conference—morning; small group discussions and field work—afternoon.

Psychology 121 Educational Psychology* (3)

Advanced course in educational psychology. Designed for those with background in education and psychology. June 15 to 19: lecture 3:45-5:45 pm; small group discussions—evening. June 22 to July 3: lecture and conference—morning; small group discussions and field work—afternoon.

SECOND 3-WEEK WORKSHOP SESSION—JULY 6 TO JULY 24**108A Human Development, Learning, and Teaching* (3)**

For the general student as well as the prospective teacher. Principles of effective teaching based on an understanding of human development and the nature of learning. Prerequisite: Psychology 22 or 121. Lecture and conference—morning; small group discussions and field work—afternoon.

113 Elementary School Art* (3)

For the undergraduate in the elementary school curriculum. Materials and methods. Prerequisite: Psychology 1 and 22. Material fee, \$4.50. Lecture and conference—morning; small group discussions and field work—afternoon.

115 Teaching of Reading in the Elementary School* ‡ (3)

A basic course in methods, techniques, materials, and activities essential to a good elementary school reading program. Prerequisite: Education 108 and 123 or teaching experience. Lecture and conference—morning; small group discussions and field work—afternoon.

138 Teaching Social Studies* ‡ (3)

For senior year students and experienced teachers. Content, methods, materials, and activities. Prerequisite: Education 108, 123, 141, and 24 semester hours of social studies. Lecture and conference—morning; small group discussions and field work—afternoon.

141 Teaching Latin (3)

Consideration of objectives in teaching Latin; construction of courses of study, techniques of motivation, presentation, and drill; areas of enrichment. Designed for both junior and senior high school teaching. Prerequisite: Education 108, 123, 141 or the equivalent. A 5-week course July 23 to August 26. MTWTF 8-10-9-30 am.

107 Curriculum Materials* ‡ (3)

For experienced teachers. Construction of courses of study, resource units, classroom teaching aids, and inexpensive materials, their application to students' own situations. Lecture and conference—morning; small group discussions and field work—afternoon.

* A workshop course requiring the full daytime attention of enrollees. Concurrent registration for another course scheduled in morning or afternoon not permitted.

‡ This course may not be taken by students who have completed or plan to enroll in Education 111.

‡ Prerequisite: adequate professional preparation.

223 Reading Problems* ‡ (3)

For experienced teachers. Study of reading difficulties on elementary and secondary school levels; classroom and clinical procedures in solving reading problems. Lecture and conference—morning; small group discussions and field work—afternoon.

243 Human Relations in the Classroom* ‡ (3)

Principles and practices involved in interpersonal relationships between learner and teacher and among learners. Lecture and conference—morning; small group discussions and field work—afternoon.

253 Analysis of the Individual for Purposes of Counseling* ‡ (3)

A detailed study of individual analysis techniques with practice in handling special methods. Prerequisite: Education 112 or the equivalent. Lecture and conference—morning; small group discussions and field work—afternoon.

256 Secondary Education* ‡ (3)

Current problems in each of the subject-matter fields. Lecture and conference—morning; small group discussions and field work—afternoon.

THIRD 3-WEEK WORKSHOP SESSION—JULY 27 TO AUGUST 14**114 Elementary School Music* (3)**

For undergraduates in the elementary school curriculum. Materials and methods. Prerequisite: Psychology 1 and 22. Lecture and conference—morning; laboratory and field work—afternoon.

117 Elementary School Science* † (3)

For teachers. Content, methods, materials, and activities essential in the elementary school curriculum. Prerequisite: Education 108 and 123 or teaching experience. Lecture and conference—morning; small group discussions and field work—afternoon.

123A Society and the School* § (3)

For the general student as well as the prospective teacher. Historical and social development of education at local, national, and international levels; cooperation of school with other community agencies; functions of school personnel. Lecture and conference—morning; small group discussions and field work—afternoon.

128 Children's Literature* † (3)

For teachers. Exploring and evaluating the newer books for children and the children's classics, understanding the contribution of literature in child development, appreciating children's original expressions. Prerequisite: Psychology 1 and 22. Lecture and conference—morning; small group discussions and field work—afternoon.

136 Teaching English* ‡ (3)

For senior year students and experienced teachers. Content, methods, materials, and activities. Prerequisite: Education 108, 123, 131, and 13 semester hours in Education. Lecture and conference—morning; small group discussions and field work—afternoon.

141 Teaching Latin (3)

See page 57.

216 Education of Slow-learning Children* ‡ (3)

Identification, nature, and needs of slow learning elementary and junior high school children. Emphasis on diagnosis and treatment of learning difficulties. Lecture and conference—morning; small group discussions and field work—afternoon.

* A workshop course requiring the full daytime attention of enrollees. Concurrent registration in another course scheduled in morning or afternoon not permitted.

† This course may not be taken by students who have completed or plan to enroll in Education 114.

‡ Prerequisite: adequate professional preparation.

§ This course may not be taken by students who have completed or plan to enroll in Education 114.

231 *Secondary School Classroom Procedures** ‡ (3)

Survey of current classroom practices with particular attention to selected topics such as teacher-pupil planning, group procedures, pupil security, initiatory and culminating activities, individual and group evaluation techniques; teaching aids, etc.; review of recent literature. Lecture and conference—morning; small group discussions and field work—afternoon.

258 *Techniques of Counseling** (3)

An intensive study of the educational and psychological processes involved in counseling interviews. Specific types of vocational, educational, and personal counseling problems will be discussed. Prerequisite: 12 semester hours in testing and guidance, including Education 253 and 257. In exceptional cases Education 253 and 257 may be taken concurrently with 258. Lecture and conference—morning; small group discussions and field work—afternoon.

SIX-WEEK SESSION—JULY 6 TO AUGUST 14

233B *Society and the School* ‡ (3)

For the general student as well as the prospective teacher. Historical and social development of education at local, national, and international levels; cooperation of the school with other community agencies; functions of school personnel. TTh 6:40-9 pm; two conference hours to be arranged.

218 *Philosophy of Education* ‡ (3)

Social foundations of education—a study of the forces that shape the policies and offerings of the school. MTWThF 8-9 am; two conference hours to be arranged.

221 *Early Childhood Education* ‡ ‡ (3)

The philosophy and principles underlying the teaching of four- to seven-year olds. Emphasis is on organization, equipment, methods, and materials for promoting the growth needs of young children. TTh 6:40-9 pm; two conference hours to be arranged.

220 *Administration of Elementary Education* ‡ (3)

For experienced teachers and administrators. A foundation as a means of achieving instructional objectives, organizing learning and teaching activities, handling students and equipment, maintaining the building, and integrating school and community life. Emphasis upon guide lines to action. MTWThF 1-2 pm; two conference hours to be arranged.

233 *Audio-visual Education* ‡ ‡ (3)

Role of audio-visual materials in learning; selection, evaluation, and use of materials; administrative problems in the care, operation, maintenance, and use of audio-visual materials and equipment. Material fee, \$7. MW 6:40-9 pm; two conference hours to be arranged.

22 *Organization and Administration of Guidance Services* ‡ (3)

Designed for guidance directors and supervisors and experienced school counselors who hope to qualify for such positions in the near future. Prerequisite: a minimum of 15 semester hours of approved graduate work in measurement and guidance. TTh 6:40-9 pm; two conference hours to be arranged.

* A workshop course requiring the full daytime attention of enrollees. Concurrent registration for another course scheduled in morning or afternoon not permitted.

‡ This course may not be taken by students who have completed or plan to enroll in Education 111.

‡ Prerequisite: adequate professional preparation.

‡ Enrollees fully employed may not register for another course.

‡ This course may not be taken by students who have completed or plan to enroll in Education 245.

271 The Teacher and School Administration† || (3)

A survey course for teachers and prospective administrators. Education and welfare, national agencies, role of the state, local administration, school finance, controls, school plant, public support, democratic administrative procedures, improving teaching conditions. MW 6:40-9 pm; two conference hours to be arranged.

272 The Teacher and School Supervision† (3)

Nature, organization, human relationships, and techniques. MTWThF 10:20-11:20 am; two conference hours to be arranged.

276 Seminar: Public Relations in School Administration† || (3)

Purposes, gathering materials, disseminating agencies, publicity media, public participation in policy making. TTh 6:40-9 pm; two conference hours to be arranged.

278 School Law† (3)

Sources and scope of school law; legal rights and responsibilities of teachers, parents, and taxpayers. Other legal problems of major interest to the group. MTWThF 9:10-10:10 am; two conference hours to be arranged.

280 Adult Education† || (3)

The adult as a learner, the teacher of adults, learning-teaching activities, administration of adult education programs. TTh 6:40-9 pm; two conference hours to be arranged.

293-94 Research (3-3)

Individual research under the guidance of a member of the staff. Program and conferences arranged with an instructor. Hours to be arranged.

295 Educational Research Methods and Procedures† (3)

Required of all candidates for graduate degrees in Education. To be taken early in the student's graduate program. Prerequisite: an elementary course in statistics. Section A. MTWThF 1-2 pm; two conference hours to be arranged. Section B. MW 6:40-9 pm; two conference hours to be arranged.

299-300 Thesis (3-3)

Required of all Master of Arts candidates writing Master's theses.

† Prerequisite: adequate professional preparation.

‡ Entrance fully discussed may not register for another course.

HOURLY SCHEDULE OF CLASSES*

FIRST SESSION—JUNE 15 TO JULY 21

Morning Classes

8:10	9:40	11:10	12:10
Acct 193 (to 9:30) Chem 3 (MWF to 12:30, TTh to 9:30) Chem 11 (to 12:30) Chem 21 (to 12:30) Chem 151 (to 12:30) Econ 101 (to 9:30) Eng 71 (to 9:30) Eng 141 (to 9:30) Fr 1A lect (to 9:30) Fr 3A lect (to 9:30) Geog 153 (MWF to 10) Geog 245 (TTh to 10) Ger—G1W1 (MTW 8:40-9:30) Ger—G3W1 (MTh 8:40-9:30) Hist 71 (to 9:30) Math 9 (to 9:30) Psych 1A (to 9:30) Psych 101 (to 9:30) Span—S1W1 (TF 8:40-9:30) Span—S3W1 (TF 8:40-9:30) Span 9 (to 9:30)	Acct 111 (to 11) Art 41 (9-12) Art 51 (9-12) Art 65 (9-12) Art 81 (9-12) Art 82 (9-12) Art 109 (to 11) Art 123 (9-12) Art 125 (9-12) Art 126 (9-12) Art 131 (9-12) Art 151 (9-12) Art 161 (9-12) Art 179 (9-12) Art 180 (9-12) Art 189 (9-12) Art 190 (9-12) Art 251 (9-12) Art 253 (9-12) Art 265 (9-12) Art 266 (9-12) Art 273 (9-12) Art 279 (9-12) Art 281 (9-12) Biol 1 (to 1)	Acct 1A (to 12:30) Anthro 1 (to 12:30) Art 110 (to 12:30) Econ 121 (to 12:30) Eng 171 (to 12:30) Geol 1 lab (to 12:50) Ger—G1W2 (MTh to 12) Ger—G3W2 (MTh to 12) Hist 146 (to 12:30) Hist 175 (to 12:30) Math 21 (to 12:30) Math 111 (to 12:30) Music 103 (to 12:30) Pol Sc 145 (to 12:30) Psych 29 (to 12:30) Relig 59 (to 12:30) Russian—R1W1 (MTh to 12) Span—S1W2 (TF to 12) Span—S3W2 (TF to 12) Speech 1A (to 12:30) Speech 32 (to 12:30)	Bus Adm 161 (12:40-2) Phys 11A rec (TTh to 1)

* Classes meet Monday through Friday unless otherwise indicated. Seminars and research courses for which hours are to be arranged, courses in Law, and courses in the School of Education will be found under the departmental announcements
† June 30 to July 21

Morning Classes (Continued)

8:10	9:40	11:10	12:10
	Bot 104 (to 11) Bus Adm 102 (to 11) Econ 1A (to 11) Eng 1 (to 11) Eng IX (to 11:50) Eng 72 (to 11) Eng 183 (to 11) Fr-F1W1 (MTh to 10:30) Fr-F1W2 (TF to 10:30) Fr-F3W1 (MTh to 10:30) Fr-F3W2 (TF to 10:30) Fr 9 (to 11) Geol 1 lect (to 11) Ger 1A lect (to 11) Ger 3A lect (to 11) Hist 39 (to 11) Hist 170 (to 11) Hist 182 (to 11) Math 15 (to 11) Math 122 (to 11) Phil 193 (to 11) Phys 11A lab (MTTh to 12) Pol Sc 9 (to 11) Relig 105 (to 11) Russian 1 lect (to 11) Soc 2 (to 11) Span 1A lect (to 11) Span 3A lect (to 11) Speech 11A (to 11) Stat 51 lect (MWF to 11) Stat 51 lab (TTh to 11) Stat 104 lect (MTTh to 11) Stat 104 lab (WF to 11)		

1:10	2:40	4:10
<p>Art 124 (1-4) Chem 113 (to 4:20) Fr 109 (to 2:30) Geog 243 (TTh to 3) Geol 103 (to 2:30) Hist 151 (to 2:30) Math 23 (to 2:30) Music 3 (to 2:30) Phil 172 (to 2:30) Phys 11A lect (MWF to 2:30) Phys 11B lect (MWF to 2:30) Phys 11B rec (TTh to 2) Psych 8 (to 2:30) Span 109 (to 2:30) Speech 121 (to 2:30) Stat 91 lect (MWF to 2:30) Stat 91 lab (TTh to 2:30) Stat 118 lect (MTTh to 2:30) Stat 118 lab (WF to 2:30)</p>	<p>Eng 173 (to 4) Phys 11B lab (MTTh to 5) Psych 131 (to 4)</p>	<p>Art 111 (to 5:30) Fr-FIW3 (TF 5-5:50) Fr-FIW3 (TF 5-5:50) Fr 51 (to 5:30) Fr 250 (to 5:30) Ger-G1W3 (MTh 5-5:50) Ger-G3W3 (MTh 5-5:50) Math 10 (to 5:30) Math 112 (to 5:30) Psych 151 (to 5:30) Psych 220 (MWF to 6) Span-S1W3 (MTh 5-5:50) Span-S3W3 (MTh 5-5:50) Span 51 (to 5:30) Stat 297 (MWF to 6)</p>
Evening Classes		
6:00	7:30	8:10
<p>Acct 1B (to 7:20) Acct 191 (to 7:20) Acct 212 (MWF 6:10-8) Art 261 (to 7:20) Biol 2 (to 9:20) Bus Adm 105 (to 7:20) Bus Adm 232 (TTh 6:10-8)* Bus and Pub Adm 201 (MWF 6:10-8)</p>	<p>Acct 115 (to 8:50) Acct 132 (to 8:50) Anthro 153 (to 8:50) Classics 31 lect (to 8:50) Econ 2 (to 8:50) Eng B (to 8:50) Eng 52 (to 8:50)</p>	<p>Bus Adm 291 (MWF to 10) Bus Adm 299 (MWF to 10) Bus and Pub Adm 206 (TTh to 10)* Eng 266 (MWF to 10) Psych 244 (MWF to 10) Pub Adm 252 (MWF to 10) Pub Adm 298 (TTh to 10)* Pub Adm 299 (MWF to 10)</p>

* June 16 to August 7.

Morning Classes (Continued)

8:10	9:40	11:10	12:10
Fr 4A lect (to 9:30) Geog 244 (TTh to 10) Ger—C2W1 (MTh 8:40-9:30) Ger—G4W1 (MTh 8:40-9:30) Hist 72 (to 9:30) Hist 130 (to 9:30) Phys 13 lab (MWF 8:30-11) Span—S2W1 (TF 8:40-9:30) Span—S4W1 (TF 8:40-9:30) Span 10 (to 9:30)	Fr—F4W2 (TF to 10:30) Fr 10 (to 11) Geol 2 lect (to 11) Ger 2A lect (to 11) Ger 4A lect (to 11) Hist 40 (to 11) Hist 171 (to 11) Math 10 (to 11) Math 16 (to 11) Phil 113 (to 11) Phys 12A lab (MTTh to 12) Pol Sc 1 (to 11) Psych 1A (to 11) Psych 22 (to 11) Russian 2 lect (to 11) Soc 2 (to 11) Span 2A lect (to 11) Span 4A lect (to 11) Speech 1A (to 11) Stat 51 lect (MTTh to 11) Stat 51 lab (WF to 11)	Music 104 (to 12:30) Phys 13 lect (TTh to 12:30) Phys 13 rec (MWF to 12:10) Pol Sc 9 (to 12:30) Relig 60 (to 12:30) Russian—R2W1 (MTh to 12) Soc 132 (to 12:30) Span—S2W2 (TF to 12) Span—S4W2 (TF to 12) Speech 11A (to 12:30)	

Afternoon Classes

1:10	2:40	4:10
Art 1 (to 2:30) Art 22 (1-4) Eng 121 (to 2:30) Math 24 (to 2:30) Music 4 (to 2:30) Phil 131 (to 2:30) Phil 132 (to 2:30)	Art 107 (to 4) Eng 92 (to 4) Eng 174 (to 4) Phys 12B lab (MTTh to 5) Psych 196 (to 4) Psych 212 (to 4)	Art 207 (to 5:30) Fr—F2W3 (TF 5-5:50) Fr—F4W3 (TF 5-5:50) Fr 52 (to 5:30) Ger—G2W3 (MTh 5-5:50) Ger—G4W3 (MTh 5-5:50) Hist 196 (to 5:30)

Evening Classes

1:10	2:40	4:10
<p>Phys 12B rec (TTh to 2)</p> <p>Psych 11B (to 2:30)</p> <p>Span 226 (to 2:30)</p> <p>Stat 53 lect (MTTh to 2:30)</p> <p>Stat 197 lab (WF to 2:30)</p> <p>Stat 197 lect (MTW to 2:30)</p> <p>Stat 197 lab (ThF to 3)</p>		<p>Psych 129 (to 5:30)</p> <p>Span—S2W3 (MTh 5-5:50)</p> <p>Span—S4W3 (MTh 5-5:50)</p> <p>Span 52 (to 5:30)</p>
6:00	7:30	8:10
<p>Acct 1 (to 7:20)</p> <p>Acct 2 (to 7:20)</p> <p>Acct 171 (to 7:20)</p> <p>Acct 275 (MWF 6:10-8)</p> <p>Art 246 (MWF 6:10-8)</p> <p>Biol 1 (to 9:20)</p> <p>Bot 127 (to 7:20)</p> <p>Bus and Pub Adm 202 (MWF 6:10-8)</p> <p>Chinese—C32W1 (MTh 6:30-7:20)</p> <p>Econ 2B (to 7:20)</p> <p>Eng B (to 7:20)</p> <p>Eng 52 (to 7:20)</p> <p>Fr 2B lect (to 7:20)</p> <p>Fr 4B lect (to 7:20)</p> <p>Geog 129 (TTh 6:10-8:30)</p> <p>Ger 2B lect (to 7:20)</p> <p>Ger—G4W4 (MTh 6:30-7:20)</p> <p>Ger 52 (to 7:20)</p> <p>Hist 187 (to 7:20)</p> <p>Math 6 (to 7:20)</p>	<p>Acct 115 (to 8:50)</p> <p>Acct 193 (to 8:50)</p> <p>Chinese 33 lect (to 8:50)</p> <p>Fr—F2W4 (TF to 8:20)</p> <p>Fr—F4W4 (TF to 8:20)</p> <p>Ger—G2W4 (MTh to 8:20)</p> <p>Ger 4B lect (to 8:50)</p> <p>Ger 49 (to 8:50)</p> <p>Math 3 (to 8:50)</p> <p>Math 23 (to 8:50)</p> <p>Psych 1B (to 8:50)</p> <p>Russian 162 (to 8:50)</p> <p>Soc 129 (to 8:50)</p> <p>Span 2B lect (to 8:50)</p> <p>Span 4B lect (to 8:50)</p> <p>Speech 11B (to 8:50)</p>	<p>Eng 235 (MWF to 10)</p> <p>Psych 225 (MTWTh to 10)</p> <p>Psych 245 (MTWTh to 10)</p> <p>Pub Adm 251A (MWF to 10)</p>

Evening Classes (Continued)

6:00	7:30	8:10
Math 21 (to 7:20) Math 140 (to 7:20) Phil 52 (to 7:20) Phys 118 (to 7:20) Pol Sc 10 (to 7:20) Pol Sc 171 (to 7:20) Psych 8 (to 7:20) Psych 145 (to 7:20) Psych 272 (MWTh 6:10-8) Psych 290 (MWTh 6:10-8) Pub Adm 233 (MWF 6:10-8) Relig 122 (to 7:20) Russian 110 (to 7:20) Span—S2W4 (TF 6:30-7:20) Span—S4W4 (TF 6:30-7:20) Span 283 (to 7:20) Speech B (MTWTh to 7:10) Speech 1B (to 7:20) Zoo 127 (to 7:20)		

• June 16 to August 28.

THE GEORGE WASHINGTON UNIVERSITY

Academic programs leading to degrees are offered in the following colleges and schools:

Columbian College of Arts and Sciences: Associate in Arts (A.A.), Associate in Science (A.S.), Bachelor of Arts (A.B.), Bachelor of Science (B.S.), Bachelor of Science in Medical Technology (B.S. in Med. Tech.), Master of Arts (A.M.), Master of Fine Arts (M.F.A.), and Master of Science (M.S.)

Graduate Council: Doctor of Philosophy (Ph.D.)

School of Medicine: Doctor of Medicine (M.D.)

National Law Center:

Law School: Bachelor of Laws (LL.B.)

Graduate School of Public Law: Master of Laws (LL.M.), Master of Comparative Law (M.Comp.L.), and Doctor of Juridical Science (S.J.D.)

School of Engineering and Applied Science: Engineering Technologist Certificate (E.T.C.), Bachelor of Science (B.S.), Master of Science (M.S.), Master of Engineering Administration (M.E.A.), and Doctor of Science (D.Sc.)

School of Education: Bachelor of Arts in Education (A.B. in Ed.), Bachelor of Science in Physical Education (B.S. in P.E.), Master of Arts in Education (A.M. in Ed.), Education Specialist (Ed.S.), Advanced Professional Certificate (A.P.C.), and Doctor of Education (Ed.D.)

School of Government, Business, and International Affairs: Bachelor of Arts in Government (A.B. in Govt.), Bachelor of Business Administration (B.B.A.), Master of Arts in Government (A.M. in Govt.), Master of Business Administration (M.B.A.), Master of Public Administration (M.P.A.), Doctor of Business Administration (D.B.A.), and Doctor of Public Administration (D.P.A.)

College of General Studies: Associate in Arts (A.A.), Associate in Science (A.S.), Associate in Secretarial Administration (A.Sec.Adm.), Bachelor of Arts (A.B.), Bachelor of Science in Cartography (B.S. in Cart.), Master of Arts (A.M.), Master of Arts in International Affairs (A.M. in I.A.), Master of Science in Business Administration (M.S. in B.A.), and Master of Science in Public Administration (M.S. in P.A.)

ANNUAL ISSUES OF THE UNIVERSITY BULLETIN

Requests for the following publications should be addressed as indicated.

College of General Studies.....	Dean of the College of General Studies
Columbian College of Arts and Sciences	Director of Admissions
Division of University Students.....	Director of Admissions
Fellowships, Scholarships, Prizes,	
Financial Aid.....	Chairman, Committee on Scholarships
General Catalogue of the University	Director of Admissions
Graduate Council.....	Dean of the Graduate Council
Law School and Graduate School of Public Law	Director of Admissions
School of Education.....	Director of Admissions
School of Engineering and Applied Science	Dean of the School
School of Government, Business,	
and International Affairs.....	Director of Admissions
School of Medicine	Admissions Office, School of Medicine
Summer Sessions	Dean of the Summer Sessions
Schedule of Classes: Fall and Spring Semesters	Registrar
Schedule of Classes: Summer Sessions	Dean of the Summer Sessions

THE GEORGE WASHINGTON UNIVERSITY, 1821

COLUMBIAN COLLEGE OF ARTS AND SCIENCES, 1821

THE GRADUATE COUNCIL, 1893

THE SCHOOL OF MEDICINE, 1825

THE NATIONAL LAW CENTER, 1959

THE LAW SCHOOL, 1865

THE GRADUATE SCHOOL OF PUBLIC LAW, 1959

THE SCHOOL OF ENGINEERING AND APPLIED SCIENCE, 1884

THE SCHOOL OF EDUCATION, 1907

THE SCHOOL OF GOVERNMENT, BUSINESS, AND
INTERNATIONAL AFFAIRS, 1928

THE COLLEGE OF GENERAL STUDIES, 1950

THE DIVISION OF UNIVERSITY STUDENTS, 1930

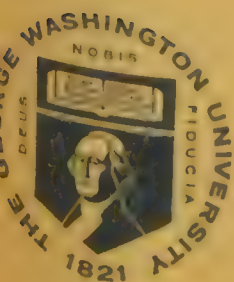
THE DIVISION OF AIR SCIENCE, 1951

THE SUMMER SESSIONS, 1916

THE UNIVERSITY HOSPITAL, 1898

The
George
Washington
University
Bulletin

Catalogue Issue
1964-1965



WASHINGTON, D. C. 20006

CORRESPONDENCE DIRECTORY

Detailed information may be obtained by addressing inquiries as indicated below. For any information not included here, please write to the Director of Admissions, The George Washington University, Washington, D. C. 20006.

Information concerning courses of instruction and the programs of the several colleges and schools will be found in separate issues of the University Bulletin, which are listed on the inside back cover.

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Alumni Association.....	Alumni Office, Bacon Hall
Medical Alumni Association.....	1335 H Street NW.
Foreign Students.....	Adviser to Foreign Students, Building T
Graduate Study	
In Arts and Sciences	
Master's degrees.....	Dean of Columbian College of Arts and Sciences
Doctor of Philosophy.....	Dean of The Graduate Council
In Education.....	Dean of The School of Education
In Engineering or Applied Science.....	Dean of The School of Engineering and Applied Science
In Law.....	Dean of The Graduate School of Public Law
In Accounting, Business Administration, Business and Economic Statistics, Economic Policy, Health Care Administration, International Affairs, Personnel Administration, Public Administration, Public Affairs.....	Dean of The School of Government, Business, and International Affairs
Housing	
Men.....	Dean of Men
Women.....	Dean of Women
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Summer Sessions.....	Dean of the Summer Sessions, Building T
Transcripts of Records.....	Registrar, Building T
Veterans Education.....	Director of Veterans Education

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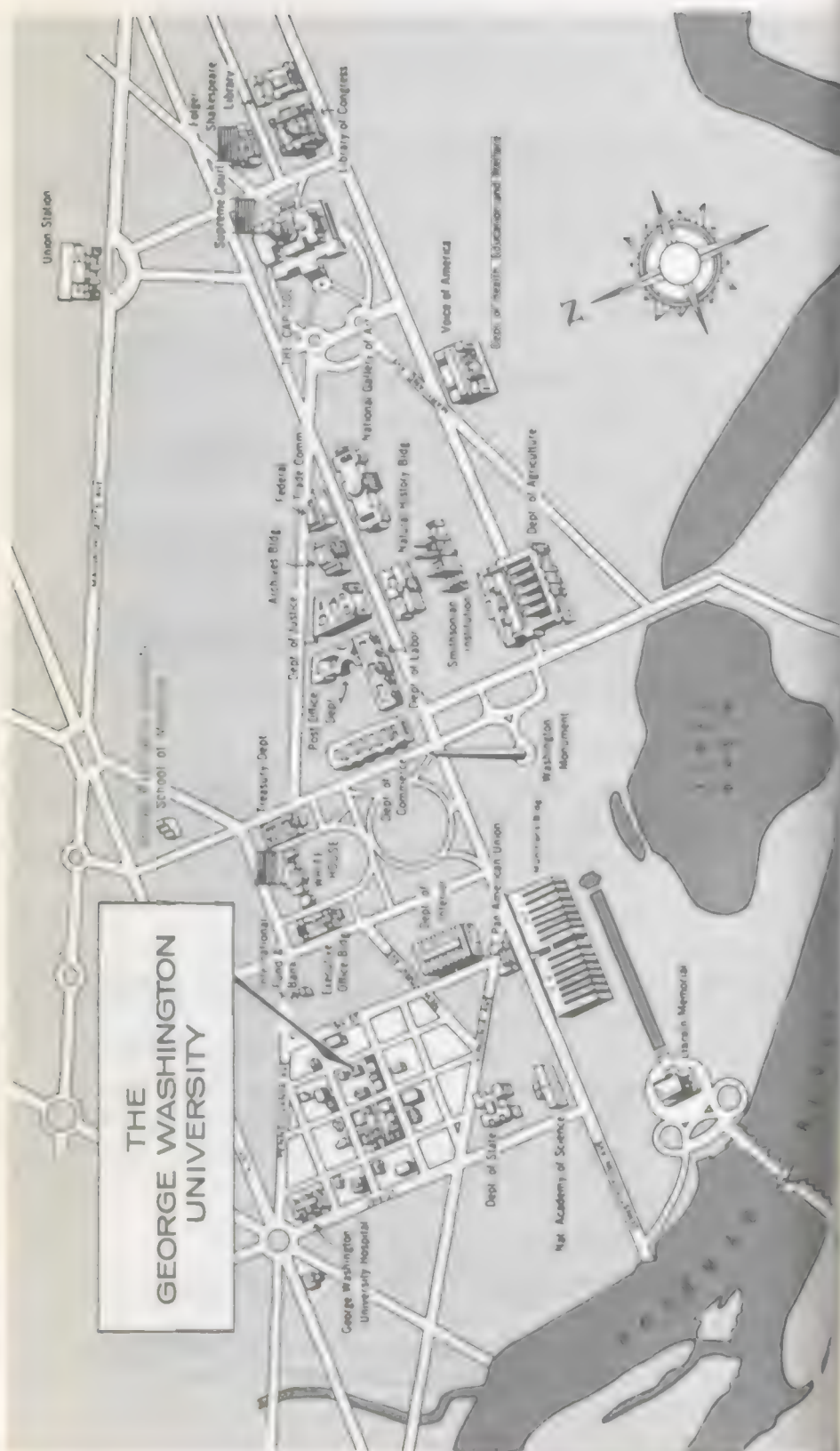
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WASHINGTON, D. C. 20006

NUMBER 10

THE
GEORGE WASHINGTON
UNIVERSITY



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The
University
Calendar

1964							1965														
July							January							July							
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	
...	1	2	3	4	1	2	1	2	3	
5	6	7	8	9	10	11	3	4	5	6	7	8	9	4	5	6	7	8	9	10	
12	13	14	15	16	17	18	10	11	12	13	14	15	16	11	12	13	14	15	16	17	
19	20	21	22	23	24	25	17	18	19	20	21	22	23	18	19	20	21	22	23	24	
26	27	28	29	30	31	...	24	25	26	27	28	29	30	25	26	27	28	29	30	31	
...	31	
August							February							August							
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2	3	4	5	6	7	8	7	8	9	10	11	12	13	8	9	10	11	12	13	14	
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16	17	18	19	20	21	22	21	22	23	24	25	26	27	22	23	24	25	26	27	28	
23	24	25	26	27	28	29	28	29	30	31	
30	31	
September							March							September							
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20	21	22	23	24	25	26	21	22	23	24	25	26	27	19	20	21	22	23	24	25	
27	28	29	30	28	29	30	31	26	27	28	29	30	
October							April							October							
...	1	2	3	1	2	3	1	2	
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11	12	13	14	15	16	17	11	12	13	14	15	16	17	10	11	12	13	14	15	16	
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...	31	
November							May							November							
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15	16	17	18	19	20	21	9	10	11	12	13	14	15	14	15	16	17	18	19	20	
22	23	24	25	26	27	28	16	17	18	19	20	21	22	21	22	23	24	25	26	27	
29	30	23	24	25	26	27	28	29	28	29	30	
...	30	31	
December							June							December							
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13	14	15	16	17	18	19	13	14	15	16	17	18	19	12	13	14	15	16	17	18	
20	21	22	23	24	25	26	20	21	22	23	24	25	26	19	20	21	22	23	24	25	
27	28	29	30	31	27	28	29	30	26	27	28	29	30	31	...	

The University Calendar 1964-65*

FALL SEMESTER:

Advising: freshmen	Sept 9-16	Wed-Wed
Engineering and Applied Science placement tests: entering freshmen.....	Sept 10	Thurs
Orientation Assembly: all new students	Sept 11	Fri
Curriculum assemblies:		
New full-time students.....	Sept 11	Fri
New part-time students.....	Sept 14	Mon
Placement tests (other than Engineering and Applied Science)	Sept 14-15	Mon-Tues
Advising: transfer students and upper classmen	Sept 14-16	Mon-Wed
University Faculty Assembly Meeting	Sept 16	Wed
Registration	Sept 17-19†	Thurs-Sat
Application for Feb graduation due in Registrar's Office		
Classes begin	Sept 21	Mon
Subjects of Master's theses of Feb candidates due in appropriate Dean's Office	Oct 2	Fri
S.J.D. dissertations of Feb candidates due	Oct 2	Fri
National Teacher Examinations	Oct 10	Sat
Board of Trustees Meeting	Oct 15	Thurs
Veterans Day (holiday)	Nov 11	Wed
Thanksgiving recess	Nov 26-28	Thurs-Sat
Ph.D., D.Sc., Ed.D., and D.B.A. dissertations of Feb candidates due in appropriate Dean's Office	Dec 1	Tues
Graduate Record and National Teacher Examinations	Dec 12	Sat
Christmas recess	Dec 23-Jan 2	Wed-Sat
Classes resume	Jan 4	Mon
Master's theses of Feb candidates due in appropriate Dean's Office.....	Jan 4	Mon
Last day of fall-semester classes.....	Jan 13	Wed
Examination period	Jan 15-23	Fri-Sat
Inauguration (holiday)	Jan 20	Wed

* In the School of Medicine registration is conducted September 10, from 10:00 A.M. to 4:00 P.M., classes begin September 14. The Calendar of the School of Medicine is published in the schedule of classes for that School.

† Thursday and Friday from 12:00 to 8:00 P.M.; Saturday from 10:00 A.M. to 1:00 P.M.

SPRING SEMESTER:

Advising: freshmen, sophomores, and all new students	Jan 18-27	Mon-Wed
Board of Trustees Meeting	Jan 21	Thurs
Placement tests	Jan 25	Mon
Registration	Jan 28-30*	Thurs-Sat
Application for June graduation due in Registrar's Office		
Spring-semester classes begin	Feb 1	Mon
Subjects of Master's theses of June candidates due in appropriate Dean's Office	Feb 5	Fri
S.J.D. dissertations of June candidates due	Feb 5	Fri
University Faculty Assembly Meeting	Feb 9	Tues
Winter Convocation (holiday)	Feb 22	Mon
Board of Trustees Meeting	March 18	Thurs
National Teacher Examinations	March 20	Sat
Spring recess	March 22-27	Mon-Sat
Ph.D., D.Sc., Ed.D., and D.B.A. dissertations of June candidates due in appropriate Dean's Office		
Master's theses of June Engineering and Applied Science candidates due in Dean's Office	April 1	Thurs
Graduate Record Examination	April 5	Mon
Master's theses of June candidates (other than Engineering and Applied Science) due in appropriate Dean's Office	April 10	Sat
Last day of spring-semester classes	April 30	Fri
Examination period	May 19	Wed
Memorial Day (holiday)	May 24-29	Mon-Sat
Board of Trustees Annual Meeting	May 31	Mon
Baccalaureate Service	June 5	Sat
Commencement	June 6	Sun
	June 6	Sun

SUMMER SESSIONS:†**REGISTRATION FOR FALL SEMESTER:**

1965-66	Sept 16-18	Thurs-Sat
---------------	------------------	-----------

* Thursday and Friday from 12:00 to 8:00 P.M.; Saturday from 10:00 A.M. to 1:00 P.M.

† Dates will be announced in the Calendar of the 1965 Summer Sessions Catalogue, published in December 1964.

The University

HISTORY

The George Washington University had its beginning in 1821 as The Columbian College in the District of Columbia. The name of the institution was changed in 1873 to Columbian University and in 1904 to The George Washington University. The debt of the University to George Washington whose name it bears is an intangible one.

George Washington, as President and as private citizen, had urgently insisted upon the establishment of a National University in the Federal City. There he hoped that, while being instructed in the arts and sciences, students from all parts of the country would acquire the habits of good citizenship, throwing off local prejudices and gaining at first hand a knowledge of the practice, as well as the theory, of republican government. To further the materialization of his hopes, Washington left a bequest of fifty shares of The Potomac Company "towards the endowment of a University to be established within the limits of the District of Columbia, under the auspices of the General Government, if that government should incline to extend a fostering hand towards it." The Congress never extended "a fostering hand." The Potomac Company passed out of existence and Washington's bequest became worthless.

Fully conscious of Washington's hopes, but motivated primarily by a great missionary urge and the need for a learned clergy, a group of dedicated ministers and laymen sponsored a movement for the establishment of a college in the District of Columbia. Inspired largely by the zeal and energy of the Reverend Luther Rice, they raised funds for the purchase of a site and petitioned Congress for a charter. After much delay and amendment, Congress granted a charter which was approved by President Monroe on February 9, 1821. To safeguard the College's nonsectarian character it provided "That persons of every religious denomination shall be capable of being elected Trustees; nor shall any person, either as President, Professor, Tutor or pupil, be refused admittance into said College, or denied any of the privileges, immunities, or advantages therefore, for or on account of his sentiments in matters of religion."

During the entire time when the institution was known as Columbian College, its activities were centered on College Hill, a tract of forty-six and a half acres between the present Fourteenth and Fifteenth Streets extending north from Florida Avenue to somewhat beyond Columbia Road. The Medical School was located downtown. For the better part of the Columbian University period, the buildings of the University were situated along H Street between Thirteenth and Fifteenth Streets. The Medical School group still remains there.

During the last half century the University's present plant has been developed in that section of the old First Ward familiarly known as "Foggy Bottom," between

Nineteenth and Twenty-fourth Streets, south of Pennsylvania Avenue. The area is not without its reminders of historic interest to the University. President Monroe who signed the Charter lived at 2017 Eye Street. The first President of the Board of Trustees, the Reverend Obadiah B. Brown, was for fifty years the pastor of a church at Nineteenth and Eye Streets, and Washington selected twenty-third and E Streets as the site of the National University he had hoped to see established.

PURPOSE AND OBJECTIVES

The purpose of The George Washington University expressed in the words of the Bill of Incorporation, introduced and subsequently enacted by Congress in 1821, was to realize "the aspirations of Washington, Jefferson, and Madison, for the erection of a university at the seat of the Federal Government." Over the years it has been the aim to develop the University ideal in the Nation's Capital with a view toward meeting the changing needs of society while continuing to pursue the traditional principles of learning and research.

The George Washington University now rededicates itself and all the resources at its command to the pursuit of knowledge and its dissemination.

To this end:

The University recognizes its special opportunities in and obligations to one of the principal capitals of the world. It is a primary objective of the University to utilize its historical, geographical, and functional relationship to the Nation's Capital and the Washington community in continuing the development of a great nationally and internationally oriented university.

The University recognizes the needs of our times and accepts the challenge to develop each student's potential abilities to the fullest extent.

The University is and should remain privately controlled, nonsectarian, and co-educational.

Admission to the University is determined only in terms of the personal character and academic qualifications of the candidates.

A broadly based liberal education is fundamental to the total program of the University.

Expansion of graduate and professional studies and research and the utilization for these purposes of the excellent research facilities and materials available in the Nation's Capital are basic to the continuous development of the University's educational program.

The provision of superior instruction and facilities and the application of high standards of entrance qualifications and academic achievement to all students whether full-time or part-time, on-campus or off-campus, are major missions of the University.

A balanced program of student extra-curricular activities is an integral part of the University program.

The University will continue to strive to meet the evident needs of an enlarging student body while governing the size of enrollment by its capacity to supply adequate staff and facilities for the excellent teaching and research which it espouses.

THE COLLEGES, SCHOOLS, AND DIVISIONS

The George Washington University includes twelve colleges, schools, and divisions, as follows:

Columbian College of Arts and Sciences, through its lower and upper divisions, offers four-year programs in the arts and sciences leading to the degrees of Bachelor of Arts, Bachelor of Science, and (in cooperation with the Department of Pathology and the University Hospital) Bachelor of Science in Medical Technology. The lower division also provides the first two years of the prelegal and premedical programs; the preprofessional work required for admission to the School of Education and the School of Government, Business, and International Affairs; and two year terminal curricula in Accounting and Physical Sciences. The curriculum in Accounting leads to the degree of Associate in Arts; the Physical Sciences curriculum leads to the degree of Associate in Science. The graduate division offers programs leading to the degrees of Master of Arts, Master of Science, and Master of Fine Arts.

The Graduate Council offers a program of advanced study and research leading to the degree of Doctor of Philosophy.

The School of Medicine offers work leading to the degree of Doctor of Medicine.

The National Law Center includes the Law School and the Graduate School of Public Law. The Law School offers professional courses leading to the degree of Bachelor of Laws. The Graduate School of Public Law offers programs leading to the degrees of Master of Laws, Master of Comparative Law, and Doctor of Juridical Science.

The School of Engineering and Applied Science offers courses leading to the Engineering Technologists Certificate and the degree of Bachelor of Science in the following areas: Civil Engineering, Communications, Control Systems, Electrical Engineering, Electronics, Energy Conversion, Engineering Science, Machine Computers, Measurement Science, Mechanical Engineering Structures, Theoretical and Applied Mechanics. Graduate programs lead to the degrees of Master of Science, Master of Engineering Administration, and Doctor of Science.

The School of Education offers undergraduate programs leading to the degrees of Bachelor of Arts in Education and Bachelor of Science in Physical Education; graduate studies leading to the degrees of Master of Arts in Education, Education Specialists, and Doctor of Education.

The School of Government, Business, and International Affairs offers work leading to the following degrees: (1) Bachelor of Arts in Government with a major in International Affairs or Public Affairs; (2) Bachelor of Business Administration with a major in Accounting, Business Administration, or Business and Economic Statistics; (3) Master of Arts in Government with a major field in Public Administration, Public Affairs, International Affairs, Economic Policy, Business and Economic Statistics, or Personnel Administration; (4) Master of Business Administration with a major field in Accounting, Business Administration, Health Care Administration, or Personnel Administration; (5) Master of Public Administration with a major field in Public Administration or Personnel Administration; (6) Doctor of Business Administration or Doctor of Public Administration.

The College of General Studies supplements the adult education program of the University through Off-Campus Study; Campus Study; Institutes, Conferences, and Special Projects; and Continuing Education and Noncredit Programs. This College offers programs leading to the degrees of Associate in Arts; Associate in Science;

Associate in Secretarial Administration; Bachelor of Arts; Bachelor of Science in Cartography; Bachelor of Business Administration; Master of Arts in the fields of Financial Management, Governmental Administration, and Personnel Administration; Master of Arts in International Affairs; Master of Science in Business Administration; Master of Science in International Affairs; and Master of Science in Public Administration.

The Division of University Students makes available courses for students not candidates for degrees in this University.

The Division of Air Science offers a program of Air Force ROTC training which is integrated with the curricula of the colleges and schools of the University and leads to appointment as a commissioned officer in the United States Air Force Reserve.

The Summer Sessions.

ADMINISTRATIVE AND RESEARCH ACTIVITIES

ADMINISTRATIVE UNITS

The University maintains the following Administrative Units: Health Services, Veterans Education, the Reading Center, the Speech Clinic, and the Testing and Counseling Center.

RESEARCH PROGRAMS

Research programs sponsored by agencies of the Federal Government and by private foundations and industries are conducted. Cooperation between these programs and the various departments of instruction is as close as the nature and needs of the programs and departments will permit.

ACADEMIC STATUS

The George Washington University is accredited by its regional accrediting agency, the Middle States Association of Colleges and Secondary Schools. This is important to students who wish to transfer credits from one institution to another.

The University is on the approved list of the American Association of Universities and is a member of the College Entrance Examination Board.

The Law School is a charter member of the Association of American Law Schools and is approved by the Section of Legal Education and Admissions to the Bar of the American Bar Association. The School of Medicine is a member of the Association of American Medical Colleges and is one of the medical colleges which have been continuously approved by the American Medical Association. The School of Engineering and Applied Science is on the accredited list of the Engineers' Council on Professional Development. The School of Education is a charter member of the American Association of Colleges for Teacher Education and is accredited by the National Council for Accreditation of Teacher Education. The Department of Chemistry is on the approved list of the American Chemical Society.

LOCATION

The University is in downtown Washington four blocks west of the White House and east of the Potomac River with its extensive parkway. Readily accessible are many of the departments of the Government, including the Department of State, the

Department of the Treasury, the Department of Justice, the Department of the Army, the Department of the Navy, the Department of the Interior, the Department of Agriculture, the Department of Commerce, and the Department of Labor, as well as the National Archives, the Capitol, the Library of Congress, the National Academy of Sciences, the Pan American Union, the National Geographic Society, the World Bank, the Brookings Institution, the National Gallery of Art, and the Corcoran Gallery of Art.

GOVERNMENT

The University is privately endowed and is governed by a self-perpetuating Board of Trustees of which the President of the University is a member *ex officio*. The members of the Board are named for a period of three years and are divided into three classes. The members of one class are elected at each annual meeting to fill the places of the members whose terms of office expire. Two members of each class are nominated by the Alumni Association.

THE UNIVERSITY LIBRARY

The Library collections of The George Washington University are housed in the University Library, the general library of the University; and in the departmental libraries of law, in Stockton Hall, and medicine, in the School of Medicine.

These collections contain approximately 386,500 volumes—294,000 in the University Library, 65,000 in the Law Library, and 27,500 in the Medical Library. Approximately 10,000 volumes a year are added to the Library's resources. Endowments, supplementing the University appropriation, provide books in the fields of American civilization, American literature, foreign service, history, public finance, and the social sciences; and gifts from many sources have enriched the collections. The Libraries currently receive 2,600 periodicals.

In the modern University Library building, erected in 1939, on the first three floors are the delivery hall, card catalogue, reference and main reading rooms, periodical room, and reserve book rooms; on the fourth floor are four seminar rooms. To the original 135,000 volume eight-tier stack of modern steel construction has been added a similar unit of 170,000 volume capacity with 50 study carrels.

Of the special subject collections in the University Libraries, the most recent acquisition is the internationally known library of the Carnegie Endowment for International Peace, which was assembled during forty years of its activity in Washington, and was purchased by the University. The collection contains 50,000 bound volumes and 20,000 pamphlets in the fields of international law and relations, history, and economics. Other collections in the Library are the W. Lloyd Wright collection of Washingtoniana, acquired in 1950; the Richard Heinzel Collection of Germanic philology and literature; the Curt Wachsmuth Collection of Greek and Roman literature, archaeology, and history; the Mount Vernon Collection on political history, international law, and the social sciences; and the Chauncey Mitchell Depew Public Speaking Collection.

Information concerning the use of the Libraries may be obtained at the Library service desks. A classified list on cards of selected recent acquisitions is available at frequent intervals, in addition to the complete information in the card catalogue. Monthly art exhibits are held on the first and second floors of the University Library during the academic year.

The Library is administered for the curricular, reference, and recreational needs and interests of the students. Instruction in the use of the library is given in the required English courses, and by the reference librarians. The Library endeavors to assist students and all members of the University to use the rich library resources of Washington and the unusual opportunities they offer for extensive research. Interlibrary loan arrangements are maintained with other libraries in the city and in the United States.

The student has access to the Library of Congress, the Public Library of the District of Columbia and its branches, the library of the Pan American Union, the Library of the Bureau of Railway Economics, the Library of the United States Department of Agriculture, the Library of the United States Office of Education, the National Library of Medicine, the Library of the Smithsonian Institution, and many of the other great special collections of the government departments.

The hours of the University Library and the Law Library are Monday through Friday, 9:00 A.M. to 10:00 P.M.; Saturday, 9:00 A.M. to 5:00 P.M.; Sunday, 2:00 to 6:00 P.M. The Medical Library is open Monday through Friday, 9:00 A.M. to 10:00 P.M.; Saturday, 9:00 A.M. to 5:00 P.M.

Admission

The University accepts both men and women. Students are admitted at the beginning of each semester and summer session.

The right is reserved to refuse admission to any student with an academic record which creates doubt of his ability to succeed in college or who, for any other reason, would not be an acceptable student.

APPLICATION FOR ADMISSION OR READMISSION

Forms for application for admission or readmission are available at and should be returned to the Office of the Director of Admissions, 2029 G Street NW., Washington, D. C. 20006; telephone: FE 8-0250, extension 344. The application for admission to degree candidacy should be accompanied by a \$15 application fee and a recent signed photograph. For information concerning admission to nondegree status, see the Division of University Students, pages 26-27.

To insure consideration, the application, together with all required credentials, should be received by July 1 for the fall semester, January 1 for the spring semester, May 1 for the first summer session, or June 1 for the second summer session.

No application for degree candidacy will be considered after September 1 for the fall semester, January 10 for the spring semester, June 1 for the first summer session, or July 1 for the second summer session.

An applicant from a secondary school must send the high school record form provided by the University to his high school principal, with the request that the completed form be mailed directly to the Office of the Director of Admissions.

An applicant who has attended one or more institutions of higher learning must request each registrar to mail directly to the Office of the Director of Admissions a transcript of his record, even though credits were not earned. If high school units are not shown on the college transcript, the applicant should request his high school to submit a transcript to the Office of the Director of Admissions.

TEST INFORMATION

The requirement of tests for Columbian College of Arts and Sciences and School of Engineering and Applied Science applicants coming directly from secondary school is specified in the entrance statement of these divisions. The appropriate report of the Graduate Record Examination, when available, should accompany application for admission to graduate degree candidacy.

Arrangement for tests is the responsibility of the applicant and should be made with the Educational Testing Service, 20 Nassau Street, Princeton, New Jersey, or Box 27896, Los Angeles, Calif., not less than one month before the date of the test.

The Bulletin of Information, obtainable without charge, contains descriptions of tests as well as rules regarding applications, fees, reports, and the conduct of the tests; lists of examination centers; examination dates; and an application blank. On the application for the test, the student should specify that the scores be sent to the Director of Admissions, The George Washington University, Washington, D. C. 20006.

College Entrance Examination Board tests are given at a large number of examination centers throughout the United States, including Washington, D. C.

If the Committee on Admission and Advanced Standing prescribes other test-necessary instructions will be sent to the applicant by the Director of Admissions.

ADVANCED STANDING

CREDIT FOR ADVANCED PLACEMENT EXAMINATIONS

Up to 30 semester hours of credit may be granted for college-level courses in an approved secondary school, if substantiated by satisfactory performance in the Advanced Placement Examination. Arrangement for the examination is the responsibility of the applicant and should be made with the College Board Advanced Placement Examinations, Educational Testing Service, 20 Nassau Street, Princeton, N. J. or Box 27896, Los Angeles, Calif.

The applicant must request the examining service to submit the test papers and scores to the Office of Admissions. Consideration is given to both the quality of performance on the examination and the quality and content of the courses of study completed by the applicant. Credit may be withheld pending satisfactory completion of higher-level courses in the same field.

CREDIT FROM HIGHER INSTITUTIONS

Advanced standing may be granted for work successfully completed at accredited institutions of higher learning. Credit will be granted for transferred work only when it meets the requirements for the degree sought at this University. It may be allowed provisionally, and it may be withdrawn for subsequent poor work. Work of low pass grade (*D* or the equivalent) will not be considered for transfer.

The student must be in good standing as to scholarship and conduct. He must be eligible to return to the last previously attended institution in the semester for which he seeks admission to this University.

SERVICE SCHOOL CREDITS

A limited amount of credit earned in service schools since 1941 may be considered for assignment to qualified degree candidates. Veterans should submit to the Director of Admissions photostatic copies of their service school records, indicating courses successfully completed with sufficient identification of the course to locate in the Guide to Evaluation of Educational Experience in the Armed Forces.

READMISSION

A student previously registered in the University who was not registered on-campus during the immediately preceding semester (summer session excluded), must apply

for readmission in the Office of the Director of Admissions. (See closing dates for application for admission, page 15.) If he applies as a degree candidate and was previously registered as a nondegree student, or if he has attended one or more higher institutions during his absence from the University, he must have complete, official transcripts sent to the Office of the Director of Admissions from each institution attended. Applications for readmission are considered on the basis of regulations currently effective.

TRANSFER WITHIN THE UNIVERSITY

For information concerning transfer from one college, school, or division to another within the University, see page 56.

Entrance Requirements*

Good character and an academic background appropriate for the program of studies contemplated are required.

COLUMBIAN COLLEGE OF ARTS AND SCIENCES

LOWER DIVISION

Requirements for admission to the freshman class are as follows:

1. An acceptable certificate of graduation from an accredited secondary school, showing at least fifteen units† which must include four years of English; at least two years of one foreign language; two years of science, preferably with laboratory instruction; two years of social studies, one of which must be American history; and two years of college preparatory mathematics. It is to be noted that one unit of algebra, or the equivalent, is prerequisite to courses in chemistry and statistics, and that one unit in algebra and one unit in plane geometry, or the equivalent, are prerequisite to courses in mathematics and physics.

2. The principal's statement that the applicant is prepared to undertake college work.

3. College Entrance Examination Board scores must be submitted on the Scholastic Aptitude Test and the English Composition Achievement Test. Applicants are urged to submit scores on two additional achievement tests in subjects reflecting their major interests.

It is recommended that the examinations be taken in December or January. Scores on tests taken in the Junior year may be submitted. Arrangement for tests should be made with the Educational Testing Service, 20 Nassau Street, Princeton, N. J.; or

* Entrance requirements are established by the faculties of the several colleges, schools, and divisions. The Director of Admissions, as agent for the faculties, administers regulations governing admission, readmission, and transfer.

† A unit represents a year's study in a secondary school subject, including in the aggregate not less than 120 sixty-minute periods, or the equivalent, of prepared classroom work.

Box 27396, Los Angeles, Calif., not less than one month before the date of the test. In applying for the test, the student should specify that the scores be sent to the Director of Admissions, The George Washington University, Washington, D. C. 20006.

The Committee on Admission and Advanced Standing will consider the adequacy of the qualifications of an applicant who, because of unusual circumstances, does not present all the formal requirements stated above. The Committee may prescribe appropriate scholastic-aptitude tests of the University.

UPPER DIVISION

Bachelor of Arts.—Sixty-four hours of academic work based on the *Arts and Letters* curriculum in the lower division, or the equivalent (see page 70).

Bachelor of Science.—Sixty-four hours of academic work based on the *Science* curriculum in the lower division, or the equivalent (see pages 70 and 71).

Bachelor of Science in Medical Technology.—Sixty-four hours of academic work including Biology 1-2*, Chemistry 11-12, and Microbiology 211 and 212, or the equivalent (see pages 70 and 71).

GRADUATE DIVISION

An approved Bachelor's degree from an accredited higher institution; an appropriate distribution of courses; and a superior quality of work in the major field are required. A student from an unaccredited institution may be admitted at the discretion of the Committee on Admission and Advanced Standing, but he may be required to submit scores on the Graduate Record Examination or take extra work.

Applications for admission must be approved by the department and by the Dean.

Master of Arts.—A Bachelor of Arts degree at this University with a major in the chosen field, or the equivalent.

Master of Science.—A Bachelor of Science degree (Columbian College) at this University with a major in the chosen field, or the equivalent.

Master of Fine Arts (1) in the field of Painting, Sculpture, or Ceramics.—A Bachelor of Arts degree at this University with a major in drawing and painting, sculpture, or ceramics, or the equivalent. (2) *In the field of Dramatic Art.*—A Bachelor's degree from an accredited college or university. Desirable undergraduate background includes courses in literature, drama, and the theater. Applicants with academic deficiencies may be enrolled in the program subject to the satisfactory completion of prescribed courses.

SPECIAL STUDENTS

Some students not immediately eligible for unqualified degree candidacy may be admitted as special students to demonstrate ability in a prescribed program, or to make up deficiencies.

The schedule of a special student consists of courses required in the curriculum to which he wishes to transfer. The choice of courses must be approved by the Ad-

* An interdepartmental course offered by the departments of Botany and Zoology.

viser. If the undergraduate student has not completed the language requirements of his chosen curriculum at the time of admission, he must include 3 semester hours of language in each 12 hours of work until the requirement is met. Second- or third-group courses may not be taken unless all first-group requirements have been met or are being met concurrently.

All special students are expected to consult with an adviser in Building P at least twice a semester.

Upon satisfactory completion of the prescribed program, the student is automatically assigned full status in the appropriate (lower, upper, or graduate) division of the College. Work satisfactorily completed as a special student is normally applicable to the appropriate degree at the undergraduate level.

The terms of admission of a student attempting to qualify for graduate degree candidacy specify the amount of work applicable to the degree program if the student is later admitted to candidacy.

A student at the undergraduate level who fails to maintain a quality-point index of 2.00 may be dropped.

THE GRADUATE COUNCIL

Doctor of Philosophy.—Acceptable personal qualities and the capacity for creative work are required, together with a Bachelor's degree with a major in the proposed field or the equivalent, for provisional status; or one year of acceptable graduate work, for full status.

THE SCHOOL OF MEDICINE

Doctor of Medicine.—Well-qualified candidates are eligible for admission after completing 90 semester hours, or the equivalent, applicable toward a degree in an approved college. However, the majority of applicants are better prepared for the study of medicine after four years of college work. Applicants are required to take the Medical College Admission Test, sponsored by the Association of American Medical Colleges, in advance of the academic year for which application is made. Specific required courses are:

Biology (including 4 hours of laboratory).....	8
A course in either general biology or zoology	
Chemistry:	
Inorganic (including 4 hours of laboratory).....	8
Qualitative analysis may be counted as part of this requirement.	
Organic (including laboratory).....	6-8
The equivalent of a one-year college course	
English Composition and Literature.....	6
Physics (including at least 2 hours of laboratory).....	8

With the exception of these specific requirements applicants are urged to follow their personal interests in developing their premedical courses of study. Commendable academic standing and a well balanced college program are the criteria by which an applicant is judged.

ADVANCED STANDING

A student who has satisfactorily completed part of the requirements for the degree of Doctor of Medicine may apply for advanced standing if his work has been equivalent to that required by The George Washington University School of Medicine. Before final admission to the third year class, the applicant must have passed Part I of the National Board Examinations.

SELECTION PROCEDURES

The Committee on Admissions is guided in the selection of students by the applicant's academic ability, the results of the Medical College Admission Test, and personal qualifications as determined by letters of reference and personal interview. Applicants are interviewed only by invitation of the Committee.

Each applicant is notified of the Committee's decision as soon as possible.

An applicant who is offered a place in a class is required, within two weeks, to notify the Office of Admissions of the School of Medicine of his intent to accept the place reserved for him. A deposit of \$100 must be remitted not later than January 15th prior to the opening of classes of the academic year for which he applied. This deposit will not be refunded after January 15th. It will be credited toward the tuition for the first semester.

Accompanying the offer of a place in class will be forms for a report on physical condition. This report must be completed and returned to the Office of Admissions of the School of Medicine by the student's physician within two months of receipt of the letter of acceptance.

THE NATIONAL LAW CENTER

THE LAW SCHOOL

Bachelor of Laws.—An approved Bachelor of Arts or equivalent degree from an accredited college or university; a satisfactory quality of work; and an acceptable distribution of courses are required. Eligibility is based on personal and scholastic records and on the result of the Law School Admission Test. No applicant will be accepted who is ineligible to return in good standing to a previously attended law school. From the applicants, a selection is made by the Committee on Admissions. Information concerning the Law School Admission Test may be obtained from the Educational Testing Service, 20 Nassau Street, Princeton, N. J.; or Box 27896, Los Angeles, Calif.

ADVANCED STANDING

Advanced standing toward the degree of Bachelor of Laws is granted for work successfully completed in other law schools which are members of the Association of American Law Schools or are approved by the American Bar Association. Transferred credits will not be recognized in excess of those which might be earned in a similar period in this Law School.

Advanced standing will not be granted for law work already counted toward the Bachelor of Arts or other pre-legal degree.

UNCLASSIFIED STUDENTS

A degree candidate with an above-average record at another law school which is a member of the Association of American Law Schools or is approved by the American Bar Association may, at the discretion of the Dean, be admitted as an unclassified student to earn credits for transfer to the other law school.

THE GRADUATE SCHOOL OF PUBLIC LAW

Candidates must be accepted by the Faculty of the School.

Master of Laws.—A Bachelor of Arts or equivalent degree from an approved college or university* and a Bachelor of Laws or equivalent degree from a law school which is a member of the Association of American Law Schools or is approved by the American Bar Association are required. Candidates for admission must have attained a B average on all work done for the Bachelor of Laws degree, except that at the discretion of the Faculty applicants otherwise eligible may be admitted on proof of experience and attainment as an alternative. Advanced standing will not be granted for credits earned while a candidate for the first degree in law or for credits earned at another law school. Credits earned as an unclassified student will not be applicable toward meeting the requirements for the degree unless specific provision therefor is included in the letter of admission.

Master of Comparative Law and Master of Comparative Law (American Practice).—The following are required: (1) the successful completion of and graduation from a course in arts, philosophy, letters, or sciences, equivalent to graduation from a gymnasium, lycee, or liceo; and (2) graduation in law from a recognized foreign university where training was in Civil Law.

Doctor of Juridical Science.—The following are required: a Bachelor of Arts or equivalent degree from an approved college or university*; a Bachelor of Laws or equivalent degree, earned with high rank, from a law school which is a member of the Association of American Law Schools or is approved by the American Bar Association; and outstanding capacity for scholarly work in the field of law.

UNCLASSIFIED STUDENTS

A member of the bar or a person, not a member of the bar, who is a graduate of a member school of the Association of American Law Schools or a law school approved by the American Bar Association may, at the discretion of the Dean, be admitted as an unclassified student.

Unclassified students participate in the work of the course and take examinations. Courses taken by unclassified students will not be credited toward degrees at this School.

CONTINUING LEGAL EDUCATION STUDENTS

A simplified admission and registration procedure is used for members of the bar who desire to take courses on a noncredit basis. Continuing Legal Education students may not participate in student activities or benefit from the medical privileges of the University.

* The Dean is authorized to make exceptions in appropriate cases.

THE SCHOOL OF ENGINEERING AND APPLIED SCIENCE

Good character and an academic background appropriate for the program of studies contemplated are required.

FOR UNDERGRADUATE STUDY

For the Engineering Technologist Certificate and the Degree of Bachelor of Science.—Admission is based on the following factors:

1. An acceptable certificate of graduation from an accredited high school showing at least fifteen units*
2. The principal's statement that the applicant is prepared to undertake college work
3. College Entrance Examination Board scores must be submitted on the Scholastic Aptitude Test, English Composition Achievement Test, and a Mathematics Achievement Test. If the applicant studied trigonometry in high school he should take the Advanced Mathematics Achievement Test; if he did not study trigonometry in high school, he should take the Intermediate Mathematics Achievement Test. After September 1964, in place of the former Mathematics Achievement Test a score on Level I (Standard) or Level II (Intensive) Mathematics Test is required. Level I is preferred. (For details, see pages 15 and 16.)

The qualifications of applicants who, because of unusual circumstances, do not meet the above requirements will be considered by the School, which may prescribe admission tests.

Nine and one-half of the fifteen units required for entrance must be distributed as follows: three in English, two in algebra, one in plane geometry, one-half in plane trigonometry, one in physics or chemistry, and two in one foreign language or history. General science may not be counted in satisfaction of the science requirement but may be counted as an elective unit.

It is recommended that *both* physics and chemistry be studied in high school. Study of these sciences contributes to the student's general education, aids in his choice of a career, and affords a qualitative measure of his ability and potential for study of engineering or science. Superior students are encouraged to begin collegiate examinations.

The study of solid geometry is recommended, in order that the student may have a firm foundation for his collegiate studies in mathematics.

Quantitative Deficiency.—A graduate of an approved high school who does not offer for admission the particular subjects required, but who does present not less than fifteen acceptable units, may be admitted to pursue a prescribed program of studies including courses to make up for deficiencies if the deficiency in distribution does not exceed two units.

ADVANCED STANDING

Credit for Advanced Placement Examinations.—Advanced standing may be granted for study at the collegiate level in advanced courses in an approved secondary school,

* A unit represents a year's study in a secondary school subject, including in the aggregate not less than 120 sixty-minute periods of prepared classroom work.

if substantiated by satisfactory performance in the Advanced College Placement Examination. Arrangement for the examination is the responsibility of the applicant and should be made with the College Board Advanced Placement Examinations, Educational Testing Service, 20 Nassau Street, Princeton, N. J.; or Box 27896, Los Angeles, Calif.

The applicant must request the examining service to submit the test papers and scores to the Office of Admissions. Consideration is given to both the quality of performance on the examination and the quality and content of the course of study completed by the applicant. Credit may be withheld pending satisfactory completion of higher-level courses in the same field.

Total credit that may be so granted is ordinarily limited to 15 semester hours, not more than 8 semester hours of which may be in any one examination area. In exceptional cases, these limits may be exceeded, but in no case will the credit granted exceed 30 semester hours.

Credit from Higher Institutions.—Advanced standing may be granted for work successfully completed at accredited institutions of higher learning. Credit will be granted for transferred work only when it meets the requirements for the degree sought at this University, and subject to the general University regulations concerning satisfactory subsequent work. Work of low pass grade (*D* or the equivalent) will not be considered for transfer.

FOR GRADUATE STUDY

Master of Engineering Administration or Master of Science.—Bachelor's degree from a recognized institution and the capacity for productive work in the field selected.

Applicants who have significant deficiencies in their preparation may qualify for admission to graduate study by taking prescribed undergraduate courses.

In some cases such study may be carried on in addition to a limited graduate program. In no case may the undergraduate courses fulfill any part of the requirements for the graduate degree.

FOR DEGREE CANDIDACY

Master of Engineering Administration or Master of Science.—Application for admission to candidacy must be made in writing to the Dean. For details see "The Master's Degrees" in the section of this CATALOGUE devoted to the School of Engineering and Applied Science.

Doctor of Science.—For admission the student must have adequate preparation for advanced study, including a satisfactory Master's Degree, or the equivalent, together with acceptable personal qualities and a capacity for creative scholarship. The applicant must have capabilities and interests beyond the ability to assimilate organized materials in formal courses of instruction. Originality of mind combined with balanced judgment and accuracy in observation or experiment are necessary to the successful applicant.

THE SCHOOL OF EDUCATION

FOR THE BACHELOR'S DEGREES

*Bachelor of Arts in Education, Bachelor of Science in Home Economics**, and *Bachelor of Science in Physical Education*.—The satisfactory completion of the appropriate curriculum in the lower division of Columbian College of Arts and Sciences (see pages 72-73); the equivalent from another accredited higher institution; or a certificate of graduation from an approved normal school or the equivalent is required. With the exception of Home Economics, applicants must have personality traits that give promise of success as a teacher.

FOR THE MASTER'S DEGREE

Master of Arts in Education.—A Bachelor's degree from an accredited institution; an undergraduate quality-point index of 2.50 or above (C+ average); demonstrated interest in teaching; and personality traits that give promise of better-than-average success as a teacher.

Two years of successful teaching are required for admission to the fields of guidance and school administration.

FOR THE ADVANCED PROFESSIONAL CERTIFICATE

Advanced Professional Certificate.—The degree of Bachelor of Arts in Education or the degree of Bachelor of Science in Physical Education from the School of Education, or the equivalent; a Master's degree from an accredited institution; at least two years of successful teaching; and a permanent teaching license.

FOR THE DEGREE OF EDUCATION SPECIALIST

The degree of Master of Arts in Education from this University, or the equivalent; a satisfactory score on the Graduate Record Examination; and two years of successful pertinent experience.

FOR THE DOCTOR'S DEGREE

Doctor of Education.—The degree of Master of Arts in Education, or the equivalent, and at least three years of satisfactory educational experience.

THE SCHOOL OF GOVERNMENT, BUSINESS, AND INTERNATIONAL AFFAIRS

FOR THE BACHELOR'S DEGREES

Bachelor of Arts in Government.—The satisfactory completion of the *International Affairs* or *Public Affairs* curriculum in the lower division of Columbian College of Arts and Sciences (see page 74), or the equivalent.

* Open only to students enrolled in the Home Economics curriculum of the lower division of Columbian College of Arts and Sciences as of September 1961 or earlier or students who transfer from other accredited institutions with enough acceptable credits to permit the completion of the Home Economics degree requirements by June 1965. This degree will be conferred for the last time June 1965.

Bachelor of Business Administration.—The satisfactory completion of the *Accounting and Business Administration* or the *Business and Economic Statistics* curriculum in the lower division of Columbian College of Arts and Sciences (see pages 73 and 74), or the equivalent.

FOR THE MASTER'S DEGREES

A Bachelor's degree from an accredited college or university, with a quality-point index of 3.00 (a *B* average) in the relevant undergraduate fields, is required.

MASTER OF ARTS IN GOVERNMENT

In the field of Public Administration.—An undergraduate major in a social science or business administration, or equivalent work experience.

In the field of Public Affairs.—An undergraduate major in public affairs, economics, history, or political science, depending on the field of specialization.

In the field of International Affairs.—The applicant's undergraduate program should include background courses corresponding to an undergraduate major in international affairs at this University.

In the field of Economic Policy.—An undergraduate major in economics at this university, or the equivalent.

In the field of Business and Economic Statistics.—An undergraduate major in business and economic statistics, or the equivalent.

In the field of Personnel Administration.—An undergraduate major in a social science or education, with appropriate courses in psychology.

MASTER OF BUSINESS ADMINISTRATION

In the field of Accounting or Business Administration.—A Bachelor's degree from an accredited college or university.

In the program of automatic data processing appropriate courses in mathematics are required.

In the field of Health Care Administration.—A Bachelor's degree from an accredited college or university. In the selection of candidates consideration is given to personal qualifications, aptitude for health care administration, and practical experience.

In the field of Personnel Administration.—An undergraduate major in a social science or education, with appropriate courses in psychology.

MASTER OF PUBLIC ADMINISTRATION

In the field of Public Administration.—A Bachelor's degree from an accredited college or university.

In the field of Personnel Administration.—An undergraduate major in a social science or education, with appropriate courses in psychology.

FOR THE DOCTOR'S DEGREES

Doctor of Business Administration.—The degree of Master of Business Administration, Master of Arts in an approved field, or the equivalent, together with accept-

able personal qualities and a capacity for creative scholarship. Each applicant must demonstrate his competence by a qualifying examination in statistics and accounting.

Doctor of Public Administration.—The degree of Master of Public Administration, Master of Arts in an approved field, or the equivalent, together with acceptable personal qualities and a capacity for creative scholarship. Each applicant must demonstrate his competence by a qualifying examination in two tools of research, chosen as the program dictates.

THE COLLEGE OF GENERAL STUDIES

See the section of this CATALOGUE devoted to the College of General Studies.

THE DIVISION OF UNIVERSITY STUDENTS

A person not working for a degree at this University will be considered for admission to the Division of University Students to take courses for which he has adequate preparation, as determined by the departments concerned. No application fee is charged for admission to this Division.

If a student currently or previously registered in the Division of University Students applies for admission to degree candidacy, a maximum of 45 semester hours of credit will be considered for assignment, in so far as these credits are appropriate toward the degree sought.

In special instances, with the permission of the instructor, a person may be considered for admission as an auditor in a class without being required to take active part in the exercises or to pass examinations, but no credit will be allowed for such attendance.

SCHOLASTIC RECORDS

Scholastic records are required of

1. An applicant who graduated from high school within the previous two calendar years. Such an applicant must meet the following requirements for admission to Columbian College of Arts and Sciences.

a) An acceptable certificate of graduation from an accredited secondary school, showing at least fifteen units* which must include four years of English; at least two years of one foreign language; two years of science, preferably with laboratory instruction; two years of social studies, one of which must be American history; and two years of college preparatory mathematics. It is to be noted that one unit of algebra, or the equivalent, is prerequisite to courses in chemistry and statistics, and that one unit in algebra and one unit in plane geometry, or the equivalent, are prerequisite to courses in mathematics and physics.

b) The principal's statement that the applicant is prepared to undertake college work.

c) College Entrance Examination Board scores must be submitted on the Scholastic Aptitude Test and the English Composition Achievement Test.

* A unit represents a year's study in a secondary school subject, including in the aggregate not less than 120 sixty-minute periods, or the equivalent, of prepared classroom work

2. An applicant who has been subject to any form of academic or disciplinary action at any college or university within the previous calendar year.

Scholastic records may be required of

1. An applicant who has attended any college or university during the previous calendar year.

2. A former student of this University who was on probation or suspended and, since then, has attended another college or university.

3. An applicant who has ever been subject to academic or disciplinary action.

When scholastic records are required, a student may be admitted for one semester or summer term only, pending receipt of records and under provisions stated by the Office of the Director of Admissions.

THE DIVISION OF AIR SCIENCE

The applicant must be a regularly enrolled, full-time, student; at least fourteen years of age; a citizen of the United States; physically fit; of good character; and a candidate for a Bachelor's degree.

CLASSIFICATION OF STUDENTS

Regular Students.—Regular students are those who have met the entrance requirements for candidacy and are registered for degrees.

Special (or probational or provisional) Students.—Special (or probational or provisional) students are those who are in the process of qualifying for admission to curricula in degree-granting colleges and schools of this University.

University Students.—Persons not seeking degrees, as specified in the rules of the Division of University Students, may be admitted to this Division to pursue courses for which they have had adequate preparation.

Additional information concerning curricula, courses offered, entrance requirements, or admission procedure may be obtained from the Office of the Director of Admissions, 2020 G Street NW., Washington, D. C. 20006; telephone—Federal 8-0250, extension 344.

Registration

A student cannot register for classes until he has received a letter of admission to the University, issued by the Office of the Director of Admissions.

A student previously registered in the University who was not registered on-campus during the immediately preceding semester (summer session excluded), must apply for readmission in the Office of Admissions.

No registration is accepted for less than a semester or one summer session.

A student may not register concurrently in this University and another institution without the prior permission of the dean of the college, school, or division in which he is registered in this University. Registration in more than one college, school, or division of the University requires the written permission of the deans concerned, prior to registration. Allowance of credit for work done concurrently at another institution will be at the discretion of the appropriate committee.

IN RESIDENCE REGISTRATION

A student who is absent from the University for one semester or more is required to satisfy the curriculum requirements existing at the time of his return unless during his absence he maintains "in residence" status by paying the appropriate fee, see page 31. For the purpose of this regulation the summer term will be disregarded.

The student who has completed his tuition requirements, but whose graduation is deferred for any reason, must maintain "in residence" status by paying the residence fee.

TIME AND PLACE OF REGISTRATION

Registration is conducted in Building C, 2020 G Street NW., during the following periods: *fall semester*, September 17 and 18, from 12:00 to 3:00 P.M.; September 19, from 10:00 A.M. to 1:00 P.M. *Spring semester*, January 28 and 29, from 12:00 to 3:00 P.M.; January 30, from 10:00 A.M. to 1:00 P.M.

For the Law School and the Graduate School of Public Law: Stockton Hall, 720 Twentieth Street NW., days and hours as listed above.

For the School of Engineering and Applied Science: Tompkins Hall, 725 Twenty-third Street NW., days and hours as listed above.

For the School of Medicine: School of Medicine, 1335 H Street NW., September 10, 10:00 A.M. to 4:00 P.M.

For the College of General Studies: at times and places designated in individual course announcements.

REGISTRATION CHANGES AND WITHDRAWALS

For regulations governing changes in registrations and withdrawals, see pages 31, 32-33, 55-56.

Fees and Financial Regulations

Fees paid by students cover only a portion of the cost of instruction and of the operation of the University. Income from endowment funds, grants, and gifts from alumni and friends of the institution make up the difference.

The following fees were adopted for the academic year 1964-65.

Tuition Fees

For undergraduate and Master's study in Columbian College of Arts and Sciences; the School of Education; the School of Government, Business, and International Affairs; the Division of University Students; the Division of Air Science

Full time program (12 to 18 hours), each semester*	\$625.00
Part time program or hours in excess of 18, for each semester hour.....	40.00

SCHOOL OF ENGINEERING AND APPLIED SCIENCE:

Undergraduate study:

Full-time program (12 hours or more), each semester.....	650.00
Part time program, each semester hour.....	40.00

Master's study, including comprehensive examination†.....	1,300.00
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Doctor of Science:

For work leading to and including the qualifying examination.....	1,200.00
For work leading to and including the final examination.....	1,200.00

SCHOOL OF MEDICINE, for the academic year.....	1,500.00
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Registration is for the academic year. The registered student is obligated for the full tuition for the academic year. No part of the tuition will be refunded upon withdrawal or dismissal for any cause.

NATIONAL LAW CENTER:

Law School (Bachelor's study):

Full time program (11 hours or more), each semester.....	575.00
Part time program, each semester hour.....	40.00

Graduate School of Public Law:

Master's and Continuing Legal Education study:

Full-time program (11 hours or more), each semester.....	575.00
Part-time program, each semester hour.....	40.00

Doctor of Juridical Science, including the final examination.....	1,200.00
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* Payment of tuition for a Master's thesis entitles the candidate, during the academic year of registration, to the advice and direction of the member of the faculty under whom the thesis is to be written. In case a thesis is unfinished, an additional successive academic year may be granted without further tuition payment. The student must, however, be registered "in residence" during this period. If the preparation of the thesis extends beyond the second academic year, it must be registered for again, and tuition paid on the same basis as for a repeated course.

† See (*) footnote on page 30.

DOCTOR OF PHILOSOPHY†, DOCTOR OF BUSINESS ADMINISTRATION‡, OR DOCTOR OF PUBLIC ADMINISTRATION‡:

For work leading to and including the general examination.....	1,200.00
For work leading to and including the final examination.....	1,200.00

DOCTOR OF EDUCATION§:

For work leading to and including the major field examination.....	1,500.00
For work leading to and including the final examination.....	900.00

Additional Course Fees

In certain courses additional fees, such as laboratory and material fees, are charged as indicated in the course descriptions. These fees are charged by the semester and unless otherwise indicated, may be defrayed in two payments when the tuition is paid in this manner. Breakage of apparatus is charged against the individual student. When breakage is in excess of the normal amount provided for in the laboratory fee the individual student will be required to pay such additional charges as are determined by the department concerned.

Graduation Fees

Associate in Arts, Associate in Science, or Engineering Technologist Certificate	10.00
Bachelor's, Master's, Education Specialist, Doctor's degrees.....	25.00
Advanced Professional Certificate in Education.....	25.00

Fee for Binding Master's Thesis.....	6.00
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Fee for Printing Summary of Doctoral Dissertation.....	85.00
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Special Fees

Application fee (degree candidate), nonrefundable.....	15.00
Application fee, Unclassified Students in the Law School or the Graduate School of Public Law, nonrefundable.....	5.00
Application for room reservation.....	100.00
Admission tests (when required).....	6.00-12.00
Graduate Record Examination fee (to cover two examinations), charged each candidate for a Bachelor's degree in Columbian College of Arts and Sciences; the School of Engineering and Applied Science; the School of Government, Business, and International Affairs; or the College of General Studies at the time of registration for the final semester of study (excluding summer sessions).....	10.00
National Teacher Examinations fee, for Bachelor of Arts in Education degree candidates	9.00-13.00
Late-registration fee, for failure to register within the designated period.....	5.00
Change fee, for each change in program: dropping or adding a course, changing from one section to another within a course, change of status (from auditor to credit status or vice versa), and change in credit hours for a course.....	2.00

* Any student admitted to Master's study may elect to pay the total fee at the beginning of his program or on a course-by-course basis at \$40 a semester hour until the total fee is paid.

Students completing payment of the total fee before completion of the required work (including thesis and comprehensive examination) will be granted registration on an "in residence—no charge" basis for one semester immediately following the semester in which tuition payment is completed.

† If a more time is needed students must register "in residence" each semester and pay the normal "in residence" fee.

‡ The tuition fee is to be paid at the rate of \$300 a semester or in full at the beginning of each stage of the doctoral program. No residence fee will be charged if a third year is needed for completion of either part of the degree requirements.

§ This fee does not cover the cost of courses numbered 1 to 100.

¶ As long as there is an unpaid balance for the part of the program on which the student is working, he must make at least the minimum tuition payment of \$150 at each fall and spring registration and for any summer session in which he registers for academic work).

¶ If the total fee is paid for the part of the program on which the student is working, he may continue to register, without additional fee, for courses approved by his Master in Research, until the expiration of the time allowed for that part of his program.

Withdrawal fee, charged in special cases.....	5.00
Service fee, for deferred payment plan (See "Payment of Fees" below).....	5.00
Reinstatement fee, for reinstatement after financial suspension.....	10.00
Residence fee, to maintain "in residence" status during any semester of absence from the University or after completion of tuition requirements*—for all schools (except the School of Medicine)—due and payable on the official days of registration.....	40.00
Residence fee, for "leave of absence" status for the academic year in the School of Medicine.....	50.00
For special physical examination.....	2.00
Special fee, Law School (Student Bar Association activities, <i>Law Review</i> , and other services), charged each student in the Law School (except students registered "in residence") for each semester or any part thereof except the summer term.....	10.00
Engineers' Council fee, charged each student in the School of Engineering and Applied Science for each semester or any part thereof except the summer term.....	1.50
For each examination to qualify for advanced standing and for each special examination.....	5.00
English test for foreign students (when required).....	5.00
Laboratory checkout fee, for failure to check out of Chemistry laboratory by the date deadline set by the instructor.....	3.00
Transcript fee, for each transcript of record.....	1.00

Registration in the University entitles each student to the following University privileges: (1) the services of the Placement Office; (2) the use of University library; (3) gymnasium privileges; (4) admission to all athletic contests, unless otherwise specified; (5) subscription to the *University Hatchet*, the student newspaper; (6) admission to University debates; (7) medical attention and hospital services as described under Health Services. These privileges terminate and a student is no longer in residence, when he withdraws or is dismissed from the University.

PAYMENT OF FEES

All fees are payable at the Office of the Cashier, 725 Twenty-first Street NW. No student is permitted to complete registration or attend classes until all fees are paid.

Tuition and fees for each semester are due and payable in full at the time of each registration.

However, a student registered for six semester hours or more may sign a contract with the Office of the Cashier at the time of each registration permitting him to pay one-half of the total tuition and fees (except for fees payable in advance) at the time of registration and the remaining half on or before November 4, 1964 (for the fall semester) and March 17, 1965 (for the spring semester). A Service Fee of \$5 will be due and payable at the time of registration for the use of this deferred payment plan. The University will not obligate itself to notify the student, in advance of the payment-due date, for the second half of the semester charges. Students who fail to make any payment when due will be automatically suspended and may not attend classes until they have paid all accrued fees and a \$10 Reinstatement Fee and have been officially reinstated by the Office of the Cashier.

* Payment of the residence fee entitles the student who is granted leave of absence to return and continue his work toward a degree under the academic requirements which were in force at the time of his last registration. The residence fee applies toward neither financial nor residence requirements for Master's candidates in the School of Engineering and Applied Science, see the (*) footnote on page 30.

A student suspended for failure to meet payments when due may not be reinstated for the semester after two weeks from the date of suspension. Applications for reinstatement are to be made to the Office of the Cashier.

An auditor pays all fees chargeable to the student registered for credit except the late-registration fee.

Because many parents may wish some option in meeting and financing all or part of the cost of a college education, the University offers educational loan plans through the Girard Trust Corn Exchange Bank in Philadelphia, Pennsylvania; Funds for Education, Inc., Manchester, New Hampshire; and The Riggs National Bank, Washington, D. C.

Although similar in purpose, these plans vary somewhat in coverage and conditions. One year and multiple year plans are available. Insurance covering the life and health of the sponsor is provided through these plans.

Individuals over twenty-one years of age who are employed full-time are also eligible to apply. They may sponsor their own contracts, provided they meet the conditions specified by the plan for which they are applying.

Brochures and applications describing these plans are available in the Office of the Vice President and Treasurer.

WITHDRAWALS AND REFUNDS

Applications for withdrawal from the University or for change in class schedule must be made in person or in writing to the dean of the college, school, or division in which the student is registered. Notification to an instructor is not an acceptable notice (see "Withdrawal", pages 35-36).

In authorized withdrawals and changes in schedule, cancellations of semester tuition charges and fees will be made in accordance with the following schedule:

1. Complete withdrawal from the University:

Fall Semester

Withdrawal dated on or before September 25, 1964	90 per cent
Withdrawal dated September 28 to October 9, 1964	75 per cent
Withdrawal dated October 12 to October 23, 1964.....	50 per cent
Withdrawal dated after October 23, 1964.....	none

Spring Semester

Withdrawal dated on or before February 5, 1965.....	90 per cent
Withdrawal dated February 8 to February 19, 1965.....	75 per cent
Withdrawal dated February 22 to March 5, 1965.....	50 per cent
Withdrawal dated after March 5, 1965.....	none

2. For a change in status from full-time to part-time student or for partial withdrawal by a part-time student, the above schedule applies to the difference in charges between the original program and the adjusted program continuing in effect.

3. A student enrolled in a full-time program, who drops or adds a course and continues to be in a full-time program, will have no financial adjustments of tuition made other than those involving course fees.

Payment applies only to the semester for which a registration charge is incurred and in no case will this be credited to another semester.

Students in chemistry who fail to check out of the laboratory on or before the date set by the instructor, unless excused by the instructor, will be charged a \$3 checkout fee. A student who drops a course before the end of the semester must check out of the laboratory at the next regular laboratory period.

Students enrolled in the ROTC who fail to turn in uniforms, equipment, and textbooks, on separation from the Corps, are charged the value of the missing items.

Authorization to withdraw and certification for work done will not be given a student who has not a clear financial record.

Students are encouraged to provide their own cash funds until they can make banking arrangements in the community.

Fellowships, Scholarships, Prizes, Financial Aid

GRADUATE ASSISTANTSHIPS, FELLOWSHIPS, AND SCHOLARSHIPS

The following fellowships, graduate scholarships, and assistantships are available. Admission to graduate study is a prerequisite for consideration. Unless otherwise specified, a letter of application should be submitted not later than March 1 preceding the period for which the award is to be made. They should be directed to the chairman of the department or the dean of the school concerned and addressed to The George Washington University, Washington, D. C. 20006.

ASSISTANTSHIPS

Graduate Teaching Assistantships.—Open in various departments of instruction to candidates for the Master's degrees. Each graduate teaching assistant renders a designated unit of service to his major department of instruction, and receives, depending up his teaching or laboratory assignment, up to \$2,200 on a nine-month basis plus tuition and laboratory fees for the program of studies which the duties of his assistantship permit him to carry. Tuition and laboratory fees may not exceed \$730. Application should be made to the chairman of the department of instruction concerned.

Law School Research Assistantships.—Available each year to students currently enrolled in the Law School, preferably to applicants who are completing the second year. Each assistant receives an annual stipend. Awards are made on the basis of academic standing, financial need, and capacity for leadership. Research assistants have duties similar to those of teaching fellows. Application should be submitted to the Dean of the Law School not later than May 1.

Resident Assistantships for Graduate Women.—Available to single women enrolled in any field of graduate study. Each assistant receives a stipend of \$450 on a nine-month basis, tuition and laboratory fees (not to exceed \$1,100) for whatever schedule of study her duties permit her to carry, and a furnished shared apartment in a residence hall. Resident assistants serve as advisers to the residence hall governing councils and student committees; work with students to develop programs that extend the academic climate into the residence hall; participate in the general administration of the residence hall.

Application should be submitted to the Office of the Dean of Women no later than April 1.

FELLOWSHIPS

American Security and Trust Company Fellowship (1960).—A two-year fellowship of \$2,000 a year is available to a graduate student in business administration or economics in the School of Government, Business, and International Affairs.

Graduate Teaching Fellowships in Behavioral Science.—For information concerning these fellowships direct inquiries to the Center for the Behavioral Sciences.

Winfield Scott Blaney Fellowship in International Affairs (1961).—Bequest of Jeannette Blaney Strayer in memory of her father. The income from this fund, up to \$1,200, is used to provide fellowships for graduate students in a field of international relations, in the School of Government, Business, and International Affairs.

Thomas Alva Edison Fellowship (1961).—Established through the Patent, Trademark, and Copyright Research Institute in the amount of \$3,000, this fellowship is awarded annually to a University graduate student who will be expected to follow a program of research approved by a member of the Research Institute Staff. Candidates must be qualified to undertake study on the U. S. patent and related systems, and shall be nominated by the University's Patent, Trademark, and Copyright Research Institute.

Samuel Jordan Graham Fellowship in Surgery (1961).—By bequest, in memory of Judge and Mrs. Graham. The income from this fund, up to \$2,000, may be used to assist students who are pursuing postgraduate study or research, preferably in surgery, at the School of Medicine.

If no individual is conducting such work or deserving of the award, the income may be used to provide one or more scholarships (to cover tuition and other school expenses deemed appropriate) for undergraduate students in the School of Medicine. Application should be made to the Chairman of the Department of Surgery.

Graduate School of Public Law Teaching Fellowships.—Available each year to prospective candidates for the Master of Laws degree. Each fellow receives an annual stipend of \$1,000, plus tuition not to exceed \$452, for the academic year. Teaching fellows follow an approved program of study and research, assist members of the Faculty in the guidance of first year students, and supervise student work in legal bibliography and the drafting of legal instruments. Upon satisfactory completion of the year's work, a fellow is recommended for the degree of Master of Laws. Applications should be submitted to the Dean of the Graduate School of Public Law not later than March 15.

Gilbert Grosvenor Teaching Fellowship (1961).—Established by the National Geographic Society in honor of Dr. Grosvenor, an Honorary Trustee of the University. Awarded to a doctoral candidate in the field of human geography, with stipend up to \$1,700 and tuition for work leading to and including the General Examination or the Final Examination, as appropriate. Application forms are available in the Department of Geography and Regional Science.

Isabella Osborn King Research Fellowships (1927).—By bequest, fellowships varying in amounts from \$750 to \$3,000 are offered in the biological sciences to foster research for which the libraries and scientific establishments in Washington provide special facilities.

Robin Miller Research Fellowship (1953).—A \$3,000 fellowship established by bequest of Mrs. Robin Miller for the study of cardiovascular diseases.

National Aeronautics and Space Administration Predoctoral Fellowships.—Fellowships, including tuition and stipends of from \$2,400 to \$2,800 (on a 12-month basis), depending on the stage of the doctoral study, are available in the fields of the physical sciences, engineering, mathematics, statistics, economics, and business. Application should be made to the Graduate Council prior to March 15, for the following academic year.

National Science Foundation Cooperative Graduate Fellowships.—Fellowships at \$2,400 for twelve months or \$1,800 for nine months, with tuition waived, are available in the mathematical, physical, medical, biological, and engineering sciences and in certain other fields regarded as employing scientific methods. Application should be made to the Graduate Council not later than November 1 for the following academic year.

National Science Foundation Summer Fellowships for Graduate Teaching Assistants.—Summer fellowships are available at not less than \$50 or more than \$85 a week for a period of 8 to 12 weeks; tuition is waived. Application should be made to the Graduate Council not later than December 1.

Thomas Bradford Sanders Fellowships (1928).—Fellowships in departments of science, varying in amounts from \$400 to \$1,500 plus tuition, established by bequest of Addie Sanders in memory of her brother.

Scottish Rite Fellowships.—The Ancient and Accepted Scottish Rite of Freemasonry, Southern Jurisdiction, U.S.A., offers fellowships each in the amount of \$2,200, to graduates of accredited colleges who wish to enroll in the School of Government, Business, and International Affairs, to train for government leadership—federal, state, or local. The territory includes the Orient of Alabama, Alaska, Arizona, Arkansas, California, Colorado, District of Columbia, Florida, Georgia, Hawaii, Idaho, Iowa, Kansas, Kentucky, Louisiana, Maryland, Minnesota, Mississippi, Missouri, Montana, Nebraska, Nevada, New Mexico, North Carolina, North Dakota, Oklahoma, Oregon, South Carolina, South Dakota, Tennessee, Texas, Utah, Virginia, Washington, West Virginia, Wyoming, Panama, Puerto Rico, and the Bodies of Taiwan, Japan, Okinawa, and Guam.

These fellowships are made possible by annual gifts and are available to residents of the respective states or countries. Application should be made to the Sovereign Grand Inspector General of the Supreme Council, 33°, of the Southern Jurisdiction, U.S.A., of the Orient state or country from which the application is to be made. Direct inquiries to Mr. C. M. Farrington, The George Washington University.

United States Public Health Service Predoctoral Fellowships.—Fellowships, including tuition, fees, and stipends of from \$1,800 to \$2,200 a year (on a 12-month basis), depending on the stage of the doctoral study, are available in the medical sciences; in those areas of the biological, physical, and behavioral sciences related to health; and in the environmental and other health oriented fields. Complete information and application forms are available at the Career Development Review Branch, Division of Research Grants, the National Institutes of Health, Public Health Service, Bethesda, Maryland 20014.

United States Public Health Service Training Grants.—Information concerning training grants in fields of the medical sciences is available at the Office of the Dean of the School of Medicine.

University Teaching Fellowships.—Assigned for the academic year to the various departments of instruction. The applicant is expected to be a prospective candidate

for a Doctoral degree in the general field of his future doctoral study. Each teaching fellow receives an annual stipend (on a nine-month basis) of up to \$2,200 plus tuition and laboratory fees for whatever schedule of study or research his fellowship duties permit him to carry. Tuition and laboratory fees may not exceed \$600. Stipends vary with the work load of the individual teaching fellow. Normally a University teaching fellow renders half-time service in classroom or laboratory assignments to the department of instruction directing his doctoral study. Application should be made to the chairman of the department of instruction concerned.

SCHOLARSHIPS*

Frederick Albert and Alma Hand Britten Scholarships (1959).—Bequest of Alma Hand Britten to provide tuition aid to incoming graduate students who would not otherwise be able to pursue their studies in the School of Engineering and Applied Science. Scholarships are awarded on the basis of need and scholarship. Application should be made before March 1 for the following academic year. Application forms are available in the Office of the Dean of the School of Engineering and Applied Science.

Special Program in Elementary Teacher Education (1963).—See pages 41-42.

Law School Honor Scholarships (1963).—A limited number of one-year scholarships, each in the amount of \$1,500, are available annually to college graduates beginning the study of law in the fall semester. These scholarships are awarded on the basis of outstanding college records (both academic and extra-curricular), need, and demonstrated aptitude for the study of law. Application should be submitted to the Dean of the Law School by March 1.

Law School Scholarships.—Available each year in the Law School to graduates of accredited colleges. Each scholarship provides full three-year tuition in the morning division of the Law School. Candidates must have graduated in the upper fifth of their class and must have demonstrated qualities of leadership in addition to scholastic attainment. To retain the scholarship, the successful candidate must maintain a *B* average. Application must be made before March 1 to the Dean of the Law School.

Tuition scholarships are also available to continuing second- and third-year full-time students with averages of 75 and above. Applications should be made to the Dean of the Law School prior to July 1. Scholarships are awarded after spring-semester grades are reported.

Wolcott Foundation Scholarships.—Sponsored by the Wolcott Foundation of High Twelve International and available to graduates of accredited colleges who wish to enroll in the School of Government, Business, and International Affairs for graduate work in International Affairs, Public Administration, Personnel Administration, or Business Administration. Preference is given to students who themselves are affiliated with, or whose parents are affiliated with, High Twelve International or the Masonic Order. The fellowships cover tuition for one calendar year of graduate study in residence. Where need is shown, a living allowance up to \$100 a month may be

* For scholarships in the School of Medicine, see "For Students with Established Academic Records at this University", pages 40-44.

granted. Direct inquiries to Mr. C. M. Farrington, The George Washington University.

General information regarding awards sponsored by foundations, government agencies, professional and learned societies, industries, and others which may be used in support of graduate study is available at the Office of the Chairman of the Committee on Scholarships for students enrolled at The George Washington University. Such scholarships and fellowships include, among others, the Rhodes, Marshall, Woodrow Wilson, Fulbright, Rotary International, Danforth, National Science Graduate Fellowships, and National Defense Graduate Fellowships.

As deadlines for application vary, qualified students should make inquiries well in advance of the year of planned graduate study.

SCHOLARSHIPS*

Scholarships are awarded for the academic year unless otherwise specified and are credited in equal parts for each semester. Each holder must carry a full schedule of academic work (fifteen semester hours or in the professional schools, the full prescribed schedule) during the period for which the scholarship is awarded.

A letter of application should be submitted on or before April 1 for the following academic year and, unless otherwise specified, should be addressed to the Chairman of the Committee on Scholarships, The George Washington University, Washington, D. C. 20006. Awards are made during the month of April. All scholarships begin with the fall semester.

The following is a listing of the scholarships available to The George Washington University students, the donors who make them possible, and the year each scholarship was instituted at this University.

OPEN TO INCOMING FRESHMAN STUDENTS

The following scholarships are awarded to outstanding members of recent graduating classes of accredited secondary schools. Applicants must be citizens of the United States who are not receiving veterans' benefits under any public law.

Applicants must apply for admission to the University and be accepted before their scholarship applications can be considered. Forms for application for admission to the University are available at the Office of the Director of Admissions, The George Washington University, Washington, D. C. 20006.

Alumni Scholarships.—Five scholarships are available each year in the lower division of Columbian College of Arts and Sciences, upon recommendation of alumni or regional alumni clubs, to outstanding graduates of accredited high schools outside the Metropolitan area of Washington, D. C. These scholarships provide full tuition for four academic years, beginning with the fall semester (excluding summer work and special fees). The student must maintain a *B* average. For information write to the Director of Alumni Relations. A letter of application should be submitted to the Chairman of the Committee on Scholarships on or before February 1.

* For scholarships in the School of Medicine, see "For Students with Established Academic Records at this University", pages 40-44.

Association of Federal Communications Consulting Engineers Scholarship (1958).*—A full-tuition scholarship, including laboratory fees and books. Available to a student of good character, promise, and leadership working toward the degree of Bachelor of Science (Electrical Engineering) and intending to major in communications.

Frederick Albert and Alma Hand Britten Scholarships (1959).—Bequest of Alma Hand Britten for scholarship aid to needy students preparing for the engineering profession. Application must be made not later than March 1 on forms which are available at the Office of the Dean of the School of Engineering and Applied Science.

Debate Scholarship.—Offered annually to a high school senior who intends to enter the lower division of Columbian College of Arts and Sciences and complete a Bachelor's program at this University.

The award covers full tuition for four academic years (excluding summer work and special fees), provided the holder maintains a *B* average and participates in the official University debate activities.

The scholarship is awarded on the basis of (1) participation in the annual George Washington University High School Discussion Conference and (2) participation in the Annual George Washington University High School Debate Tournament. Promising high school seniors in and outside the Washington Metropolitan Area, who have demonstrated outstanding ability in interscholastic speech activities, will also be eligible for consideration. Inquiries should be directed to the Department of Speech.

Estella Constance Drane Scholarship (1957).—By bequest, in memory of the boys of the former Washington Business High School who served in World War I. Provides an annual partial scholarship to a graduate of Roosevelt High School.

School of Engineering and Applied Science Scholarships.—Four scholarships are awarded each year to graduates of accredited high schools. Each scholarship provides full tuition for four academic years (excluding summer work and special fees), provided the student maintains an average of *B* and a satisfactory standard of deportment.

Applications must be made before March 1 for the following academic year. Application forms are available in the Office of the Dean of the School of Engineering and Applied Science.

General Motors College Scholarship (1955).—Awarded to an incoming freshman with outstanding talent, high personal qualifications, and financial need. The amount is flexible varying from \$200 to \$2,000 a year, depending upon the need of the individual. It is renewable for the four years of undergraduate work provided the student continues to meet the high standards established for the holder of this award. A letter of application should be submitted on or before February 1.

High School Scholarships.—The Board of Trustees offers annually thirty-four scholarships to graduates of accredited high schools in the following Washington Metropolitan areas: District of Columbia; Fairfax-Falls Church; Alexandria City; Montgomery, Prince Georges, and Arlington counties. One of these scholarships, designated as the *Amos Kendall Scholarship*, was established in 1869 by the Honorable Amos Kendall.

These scholarships are awarded to students who intend to enter the lower division of Columbian College of Arts and Sciences and complete a Bachelor's program at this University.

* This scholarship is renewable and is, therefore, not available each year for award to an incoming freshman.

The award covers full tuition for four academic years (excluding summer work and special fees). To retain a high school scholarship, an average of *B* and a satisfactory standard of deportment must be maintained.

Candidates must be indorsed by principals and counselors of participating high schools and reported as nominees to The George Washington University Committee on Scholarships not later than February 1. Direct inquiries to high school counselor.

Levin M. Powell Scholarships (1886).—Full-tuition scholarships, established by bequest, are available annually to young men wishing to prepare for entrance into the United States Naval Academy.

Julian Singman Art Scholarship (1963).—A partial scholarship for a freshman student who plans to major in Art. The award will be granted upon completion of one semester's work at this University. Direct inquiries to the Chairman of the Department of Art.

Abigail Ann Brown and Henry Kirk White Scholarship Fund (1963).—Established by Emilie Margaret White in memory of her parents. "The Donor of the Scholarship, Emilie Margaret White, former Supervising Director of Foreign Languages, Public Schools of the District of Columbia, requests that graduates of Washington, D. C., public high schools be given preference for these awards."

FOR STUDENTS WITH ESTABLISHED ACADEMIC RECORDS AT THIS UNIVERSITY

Applicants for these scholarships, including transfer students, must have completed one semester of work (15 hours minimum) and maintained a *B* (3.0) average at this University.

American Society of Women Accountants Scholarship (1953).—Established by the District of Columbia Chapter to provide a partial scholarship for a worthy sophomore, junior, senior, or graduate woman majoring in accounting.

Avian Foundation Scholarship Fund (1960).—An unrestricted supplement to the scholarship funds of the Medical School, to be expended in conformity with the School's policy and available until expended for nonrefundable grants to students. Scholarship aid from this fund shall be granted "to students on a combined basis of financial need and scholarship attainment."

Byron Andrews Scholarship (1920).—A partial scholarship established by Bell Fisk Andrews in memory of her husband. Available to "ambitious and needy students, who desire to pursue courses in English, Latin, journalism, history, literature, or political science."

Anna Bartsch Hospital Intern Scholarship (1946).—A partial scholarship established by Dr. Anna Bartsch-Dunne as a memorial to her mother. Awarded to a woman intern in the University Hospital.

Anna Bartsch Medical Student Scholarship (1946).—A \$500 scholarship established by Dr. Anna Bartsch-Dunne, as a memorial to her mother. Awarded to a woman in the School of Medicine, "of outstanding scholarship, character, and promise, who intends to make the practice of medicine her life profession."

Beta Sigma Phi Scholarship (1962).—A partial scholarship established by the District of Columbia City Council, available to a full-time woman student enrolled in undergraduate work.

Everett Lamont Bradley Scholarship (1954).—A partial scholarship, by bequest of Alice R. H. Bradley in memory of her son, for a student in the School of Medicine.

Henry N. Brawner, Jr., Foundation Scholarship Fund (1963).—The amount of \$2,500 to provide two scholarships covering tuition and fees for junior or senior students. Candidates must be United States citizens in financial need who have "demonstrated high scholastic ability and promise and have clearly defined degree objectives."

Frederick Albert and Alma Hand Britten Scholarships (1959).—Bequest of Alma Hand Britten for scholarship aid to needy full-time graduate or undergraduate students in the School of Engineering and Applied Science, who would not otherwise be able to pursue such professional study. Application should be made before March 1 for the following academic year. Application forms are available in the Office of the Dean of the School of Engineering and Applied Science.

Brooklyn Alumni Club Scholarship Fund (1959).—Established to financially assist a needy student in the School of Medicine.

Emma K. Carr Scholarships (1932).—Fourteen partial scholarships are available to "young men (of the white race) for undergraduate or postgraduate work, considering character, capacity, and need."

Henry Harding Carter Scholarship (1896).—A \$500 scholarship established by Maria M. Carter in memory of her husband to aid a deserving student who is preparing for the civil engineering profession.

Maria M. Carter Scholarship (1871).—Provides tuition aid to a young man.

Joseph Collins Foundation Scholarships.—Available to medical school students upon application through the Office of the Dean of the School of Medicine.

Colortone Graphic Arts and Publications Scholarship (1961).—An annual \$500 scholarship established by Colortone Press open to a senior student in Journalism planning a career in graphic arts.

Mary Covington Memorial Scholarship (1961).—Established by Mary S. English in memory of her aunt, Mary Covington, LL.B. 1922, provides tuition aid to a deserving evening student in the Law School on the basis of scholastic achievement in the first-year course.

Daughters of the American Revolution Scholarship (1952).—A \$600 scholarship established by the District of Columbia Chapter. Available to junior and senior students, preferably women, who are descendants of patriots of the American Revolution.

Isaac Davis Scholarship (1869).—Bequest for tuition aid.

Charles Worthington Dorsey Memorial Scholarship (1947).—Memorial to Charles Worthington Dorsey, Bachelor of Laws, '81, Master of Laws, '82. A full-tuition scholarship for the course leading to the degree of Bachelor of Laws, awarded to a needy and promising graduate of this University with a Bachelor of Arts or equivalent degree. The scholarship is awarded ordinarily once every three years.

Special Program in Elementary Teacher Education (1963).—A program supported by The Ford Foundation. Grants-in-aid, in amounts justified by need, may be secured to cover the tuition expenses of this program, which prepares outstanding grad-

uates of accredited liberal arts colleges for teaching in elementary schools. For details, write to Program Director, Special Program in Elementary Teacher Education, The George Washington University, Washington, D. C. 20006.

Henry Parsons Erwin Scholarship (1955).—Established by Helen B. Erwin as a memorial to her husband, a former Trustee of the University. A partial scholarship for a student in Engineering.

Robert Farnham Scholarship (1871).—Established by Mrs. Robert Farnham. Tuition aid for a student in Columbian College of Arts and Sciences.

Esther Brigham Fisher Scholarship (1951).—Bequest for tuition aid.

Gamma Phi Beta Sorority Scholarships (1962).—Two scholarships covering tuition for one 3-semester-hour course in Education for the Gifted offered annually to certified teachers when the appropriate course is available. Direct inquiries to the Dean of the School of Education.

Georgetown Business and Professional Woman's Club Scholarship (1958).—A partial scholarship for a woman student in the field of science.

Mildred Green Memorial Scholarship Fund (1959).—Established by Alpha Theta Chapter of Pi Lambda Theta, provides annual tuition aid for a student in the School of Education, upon the recommendation of the donor. Application forms are available in the Scholarship Office.

Anna Spicker Hampel Scholarship (1949).—Established by Evelyn Hampel Young in memory of her mother, provides tuition aid for a young married woman in the School of Education or Columbian College of Arts and Sciences.

Elma Lewis Harvey Scholarship (1921).—A partial scholarship established by Emma Elizabeth Harvey in memory of her daughter. For a young woman in Columbian College of Arts and Sciences of "the Protestant faith and the Caucasian race, selected for scholarship and moral qualifications."

Hazelton Scholarship (1950).—An annual partial scholarship, by bequest of Lillie S. Hazelton, "for use and assistance of needy and worthy students."

Howard Henry Howlett Scholarships (1962).—Bequest of Dr. Howlett for scholarship aid to "deserving students" in the upper division of Columbian College of Arts and Sciences.

Jewish War Veterans' Auxiliary Scholarship (1964).—A partial scholarship established by the Washington Ladies Auxiliary No. 58, Jewish War Veterans of the U.S.A., available to the son or daughter of a veteran entering his or her junior or senior year.

Robert Woods Johnson Scholarship Fund.—Available to medical school students upon application through the Office of the Dean of the School of Medicine.

Kappa Alpha Theta Scholarship (1950).—A \$500 scholarship established by the Washington alumnae for the training of a clinician in speech correction.

Kappa Kappa Gamma Scholarship (1959).—An annual \$400 scholarship established by the Washington alumnae for a student planning to follow the profession of speech correction.

Ki-Wives Scholarship.—A full-tuition scholarship available to a student or students in the School of Medicine.

Law School Scholarships.—Tuition scholarships available to continuing second- and third-year full-time students with averages of 75 and above. Application should be made to the Dean of the Law School prior to July 1. Scholarships are awarded after spring-semester grades are reported.

Medical Research Scholarships and Traineeships.—For student participation in the research programs of the School of Medicine or special training in research methods. Research scholarships are ordinarily awarded for full-time activity during the summer months; research traineeships support part-time work during the academic year. Scholars are "matched" with members of the faculty in accordance with their mutual interests. Trainees are designated by the departments responsible for the programs. These programs have been sponsored by the National Institutes of Health, the National Foundation, Lederle Laboratories, and Tobacco Industry Research Committee. In addition a number of research scholarships have been made available through the American Cancer Society Institutional grant and the Washington Heart Association.

Eugene and Agnes E. Meyer Scholarships (1952).—A scholarship fund of \$3,500, "to assist promising students or applicants in meeting the costs of furthering their education, with preferential consideration to children of persons who are employed in public service, including service in the armed forces or the judiciary."

A. Morehouse Scholarship (1861).—Tuition aid for an undergraduate "intending to enter the Christian ministry."

Chas. Pfizer Medical Scholarship Program (1962).—Established to financially assist a student in the School of Medicine.

Phi Delta Delta Scholarships (1959).—Zeta Chapter of Phi Delta Delta Legal Fraternity (International), provides tuition aid to a woman student in the second year of the Law School, who excelled in scholastic achievement and service to the Law School in her first year.

Phi Delta Gamma Scholarship (1956).—An annual partial scholarship established by Beta Chapter for a woman candidate for an advanced degree.

Gerald Pollin Scholarship (1963).—Two \$500 scholarships established by Dan and Reba Pollin in memory of their son. Awarded annually to students, preferably in the third or fourth year of the School of Medicine, who have demonstrated special interest and proficiency in the science and study of Psychiatry.

Linda Joy Pollin Scholarship (1963).—A partial scholarship established by Dan and Reba Pollin in memory of their niece. Awarded to a woman student in the School of Medicine who intends to make the practice of medicine her life profession.

Lula M. Shepard Scholarships (1946).—By bequest, two partial scholarships for "worthy Protestant students" wishing to enroll in the International Affairs program of the School of Government, Business, and International Affairs.

Social Security Administration Scholarships (1962).—Established in memory of "Bob" Decola by the Employees Activities Association to provide four undergraduate and one graduate award to cover tuition for one 3-semester-hour course a semester for three semesters. Scholarships are limited to employees of the Woodland, Maryland, Office of OASI.

David Spencer Scholarship (1918).—A partial scholarship established by Louisa J. Spencer. Available under certain restriction.

Ruby Smith Stahl Scholarship (1963).—An annual \$1,000 scholarship, available

"to a deserving student with proven initiative and capacity for appreciation of educational opportunities in the areas of science, engineering, or pedagogy."

David Perry Steinman Memorial Scholarship Fund (1960).—Established by friends and classmates. Awarded annually to a sophomore in the School of Medicine on the basis of need and academic performance.

Mary Lowell Stone Scholarship (1893).—A partial scholarship available to a woman student of science in Columbian College of Arts and Sciences.

Charles Clinton Swisher Scholarships (1941).—Partial scholarships available by bequest of Professor Swisher. Available under certain conditions to students of medieval history.

Tau Kappa Epsilon Scholarship (1959).—Established by alumni of the Metropolitan Washington, Virginia, and Maryland areas for annual tuition aid to a member of Tau Kappa Epsilon. If there is no eligible member from the fraternity, the award may be made at the discretion of the Scholarship Committee.

Tuition Scholarship (1959).—A full-tuition scholarship, presented by a friend of the School of Medicine, to be awarded to a worthy student for one year.

University Hospital Scholarships in Medical Technology.—Ten scholarships are available, each to cover the cost of 24 semester hours of the 30 in the last year of the curriculum leading to the degree of Bachelor of Science in Medical Technology. Inquiries should be directed to the Department of Pathology, The George Washington University Hospital.

William Walker Scholarship (1824).—Annual tuition aid for an undergraduate intending to enter the Christian ministry.

Barbara G. Wendt Scholarship (1961).—Established by the Presidential Chapter of the National Secretaries Association (International), of Washington, D. C., in memory of a former member. Annual tuition aid for a student in Secretarial Studies.

Abigail Ann Brown and Henry Kirk White Scholarship Fund (1963).—See page 40.

John Withington Scholarship (1830).—A partial scholarship established by the New York Baptist Theological Seminary

Ellen Woodhull Scholarship (1919).—Tuition aid for a student in Columbian College of Arts and Sciences.

Zonta Club Scholarship (1950).—An annual partial scholarship for a woman who is a junior, senior, or graduate student with special interest in a professional or business career.

THE COLUMBIAN WOMEN SCHOLARSHIP FUNDS

The Columbian Women Scholarships are awarded to women students on the basis of financial need and scholastic attainment. A letter of application for these scholarships should be addressed to the Chairman, Columbian Women Scholarships, care of the Alumni Office, The George Washington University, Washington, D. C. 20000, not later than May 15 for the fall semester, and January 1 for the spring semester. Scholarship aid is awarded from income of the following endowments:

Nellie Maynard Knapp Scholarship Fund (1915).—A fund of \$5,000 for tuition aid established in memory of a former president.

Founders of Columbian Women Scholarship Fund (1920).—A fund of \$5,000 for tuition aid.

Lillian Young Herron Scholarship Fund (1925).—A fund of \$5,000 for tuition aid, named in 1930 in memory of a former president.

Elizabeth V. Brown Scholarship Fund (1925).—A memorial fund of \$1,200 for tuition aid, established by the College Women's Club of Washington, D. C., and restricted to the School of Education.

College Women's Scholarship Fund (1926).—A \$500 gift for tuition aid established by the College Women's Club of Washington, D. C.

Lewes D. and Myrtie H. Wilson Memorial Scholarship Fund (1926).—A fund of \$1,000 for tuition aid established by Elizabeth Wilson as a memorial to her parents and restricted to the School of Medicine.

Grace Ross Chamberlin Scholarship Fund (1932).—A fund of \$2,300 for tuition aid in memory of a former president.

Janet McWilliams Scholarship Fund (1954).—A \$1,000 fund for tuition aid, by bequest of a former president.

Rose Lees Hardy Foundation Scholarship Fund (1957).—A fund of \$2,000 for tuition aid established by an alumna of the University.

Victoria Briggs Scholarship Fund (1959).—A \$500 fund for tuition aid, by bequest of Victoria Briggs Turner.

Columbian Women Members' Scholarship Fund (1961).—A \$3,500 fund for a woman student in the University.

Arline Hughes Dufour Scholarship Fund (1961).—A \$5,000 fund for tuition aid to a woman student.

Marie-Louise Ralph Turner Scholarship Fund (1963).—A \$1,000 fund for tuition aid established by Dean William L. Turner as a memorial to his wife.

PRIZES

Alpha Chi Sigma Prizes.—A *Handbook on Chemistry and Physics* awarded annually by Alpha Pi Chapter to each of three students who carry at least 18 semester hours during the freshman year and attain the highest averages in freshman chemistry.

The name and year of graduation of the student who has attained the highest quality-point index in courses in chemistry is inscribed on a bronze plaque. The winner must have had at least 16 hours in chemistry including the final semester at this University.

Alpha Delta Pi Prize.—Offered annually by Alpha Pi Chapter to the woman in the junior class with the most outstanding record in scholarship, extracurricular activities, and service to the University.

Alpha Kappa Psi Prize.—A key, awarded annually by Beta Mu Chapter to the male student who has completed 90 semester hours at this University and attained the highest average grade in economics, business administration, public accounting, public finance, and foreign commerce. The name of the winner and the year of the award is engraved on a plaque in the office of the Dean of the School of Government, Business, and International Affairs.

American Institute of Chemists Prize.—A medal and a one-year subscription to *The Chemist* awarded annually to the graduating student, majoring in chemistry, who excels in scholarship, integrity, and leadership.

Norman B. Ames Memorial Award.—Established by many friends of Professor Ames and awarded annually to a graduating senior of the School of Engineering and Applied Science who is nominated by his fellow students as having made significant contributions to the students in the School of Engineering and Applied Science and to the School and University.

Byrne Thurtell Burns Memorial Prize.—Awarded to the senior majoring in chemistry who shows the greatest proficiency in organic chemistry, as evidenced by a comprehensive examination, and who possesses such qualifications of mind, character, and personality as to give promise of future achievement.

Wilbur J. Carr Prize.—This prize of \$200 was established in 1962 by Edith K. Carr, an Honorary Trustee of the University, in memory of her distinguished husband, who was graduated from the School of Comparative Jurisprudence and Diplomacy in 1899. It will be awarded annually to that man in the graduating class of The George Washington University who has demonstrated outstanding ability in his study of international affairs and who has given evidence of possessing in marked degree the qualities which produce the good citizen and the dedicated public servant.

Chi Omega Prize.—Awarded annually by Phi Alpha Chapter to the woman in the graduating class with the highest record in the following social sciences: economics, sociology, political science, and history; combined with general excellence.

The Columbian Women Prize.—Awarded to the senior woman who in her undergraduate life has most nearly fulfilled the objectives of Columbian Women.

Ernest Connolloy Memorial Award.—Awarded by the Washington Personnel Association to an outstanding graduating senior in business administration who shows general excellence in studies, demonstrates superiority in one or more courses in personnel administration, and shows qualities of leadership or promise through extra-scholastic activities.

John Henry Cowles Prizes.—A first prize of \$100 and a second prize of \$75, established by John H. Cowles, Grand Commander of the Supreme Council of Thirty-third Degree (Mother Council of the World) of the Ancient and Accepted Scottish Rite of Freemasonry, Southern Jurisdiction of the United States of America. Awarded annually to the two seniors in the School of Government, Business, and International Affairs with the highest academic averages.

DeWitt Clinton Croissant Prize.—Awarded annually to the undergraduate student enrolled in a course in drama or active in University dramatics who submits to the English Department the best essay on drama or the theater.

E. K. Cutter Prize.—Established by Marion Kendall Cutter "for excellence in the study of English." Awarded to the member of the graduating class whose record in English, combined with general excellence, shows most marked aptitude for and attainment in English studies.

Isaac Davis Prizes.—Awarded annually to the three seniors who made the greatest progress in public speaking while enrolled in the University. Awards are to be determined by a public-speaking contest in which the participants deliver original orations. Only members of the senior class of Columbian College of Arts and Sciences who are candidates for the degree of Bachelor of Arts or Bachelor of Science are eligible to compete.

Delta Gamma Prize.—Awarded annually by Beta Rho Chapter to the woman who, at the end of her freshman year, has the most outstanding record in scholarship, extracurricular activities, and service to the University.

Delta Zeta Prize.—Awarded annually to the student maintaining the highest average in Biology 2.

Elton Prize.—Established by the Reverend Romeo Elton, of Exeter, England, and awarded annually to the student with the highest average in the most advanced course in the Greek language and literature.

School of Engineering and Applied Science Distinguished Scholar.—A certificate awarded annually by the Faculty of the School of Engineering and Applied Science to the senior who graduates with the highest scholastic standing. The student's name is engraved on a plaque displayed in Tompkins Hall.

Jesse Frederick Essary Prize in Journalism.—A prize of \$200 established by Helen Essary Murphy and awarded annually to a student who has given promise of sound citizenship and who submits the best printed and published evidence of ability in "forthright reporting" and good journalistic writing, in a student publication or elsewhere.

Joshua Evans III Prize in Political and Social Sciences.—A memorial prize of \$100 "established by friends because of an outstanding life." Awarded annually to that man in the graduating class who has demonstrated his signal ability in the social and political sciences and who has given promise of the interpretation of that ability in good citizenship among his fellows."

Willie E. Fitch Prize.—Established by James E. Fitch in memory of his son. Awarded annually to a senior student for the best examination in chemistry.

Allie S. Freed Prize.—Awarded annually to a member of the graduating class in the School of Medicine who has demonstrated exceptional proficiency in the field of Preventive Medicine.

Charles Glover Prize.—Established by Charles Carroll Glover, Jr., an Honorary Trustee of the University, in memory of his great-grandfather, an illustrious member of the bar of the District of Columbia. Consists of selected law books. Awarded annually to the student in the Law School who has attained the highest average grade in the third-year, full-time course.

Alice Douglas Goddard Prize.—A memorial established by Frederick Joseph Goddard, of Georgetown, D. C. Awarded annually to the upper-division student making the highest average in American literature.

Edward Carrington Goddard Prize.—Established by Mary Williamson Goddard, Alice Douglas Goddard, and Frederick Joseph Goddard, of Georgetown, D. C., in memory of Edward Carrington Goddard, class of '81. Awarded to the junior or senior student making the highest average in the French language and literature.

Morgan Richardson Goddard.—A memorial established by Mary Williamson Goddard, Alice Douglas Goddard, and Frederick Joseph Goddard, of Georgetown, D. C. Awarded to the junior or senior student making the highest average in the following fields: economics, business administration, foreign commerce, and public accounting.

Alec Horwitz Prize.—A prize of \$100 awarded annually to a senior in the School of Medicine who has demonstrated exceptional proficiency in the field of surgery.

Gardiner C. Hubbard Memorial Prize in United States History.—Established by

Gertrude M. Hubbard in memory of her husband and awarded annually to that member of the graduating class majoring in history who has maintained the highest standing in courses in United States history.

Kappa Beta Pi Prize.—A copy of Blackstone's *Commentaries* or a legal dictionary awarded annually by Eta Alumnae Chapter to the woman law student who attains the highest average for the freshman year.

Kappa Kappa Gamma Prize.—Awarded annually to the full-time freshman who achieves the best record in Biology 1.

John Bell Lerner Prize.—By bequest, a medal is awarded annually to the member of the graduating class in the Law School who attains the highest average grade in the entire course for the degree of Bachelor of Laws or Juris Doctor.

Huron W. Lawson Prize.—A prize of \$100 established by Mrs. Lawson in memory of her husband, who was a distinguished member of the Medical Staff of the University, is presented annually to a member of the graduating class of the School of Medicine who has demonstrated exceptional proficiency in the field of obstetrics and gynecology.

Lawyers Title Award.—A \$100 prize established by the Lawyers Title Insurance Corporation is awarded annually to a graduating senior for excellence in the law of real property.

Martin Mahler Prize in Materials Testing.—A one-year membership in the American Society for Testing Materials awarded to the upper division or graduate student in engineering who submits the best reports on tests in the Materials Laboratories course with preference given to prestressed concrete tests.

Mortar Board Prize.—A silver cup awarded annually to the woman student in the sophomore class having an average of B or higher and the most outstanding record in activities.

Julius S. Neviasser Prize in Orthopedic Surgery.—A prize of \$100 awarded annually to the senior in the School of Medicine who scores the highest grade in a written examination in orthopedics and clinical aspects of orthopedic surgery.

Omicron Delta Kappa Prize.—A plaque awarded annually by Alpha Delta Circle to "that member of the senior class who throughout his course has done the most constructive work in the furtherance and upbuilding of the University student activities."

John Ordronaux Prizes.—By bequest, \$150 awarded annually to the member of the graduating class in the School of Medicine who has the highest scholastic standing. In the Law School \$75 is awarded annually to the student who has attained the highest average grade in the first-year, full-time course; and \$75 to the student who has attained the highest average grade in the second-year, full-time course.

Panhellenic Association of Washington, D. C., Prize.—A trophy to be awarded to the Panhellenic Sorority maintaining the highest yearly scholastic average at the University for the previous year.

Phi Delta Kappa Prize.—Awarded annually by Beta Gamma Chapter to the outstanding senior man in the teacher education program in the School of Education.

Phi Eta Sigma Prize.—A choice book selected from the field of the recipient's major, awarded annually by The George Washington University Chapter to the male student attaining the highest scholastic average in his first full semester of work. The

winner's name is engraved on a plaque in the Office of the Dean of Columbian College of Arts and Sciences.

Pi Beta Phi Prize.—Awarded annually by the District of Columbia Alpha Chapter to the woman member of the senior class who throughout her college course has done the most constructive work in the promotion of student activities among the women of the University.

Pi Lambda Theta Prize.—Awarded annually by Alpha Theta Chapter to the outstanding senior woman in the teacher education program in the School of Education.

Psi Chi Prizes.—Two prizes awarded annually to the best undergraduate student in Experimental Psychology and to the graduate student submitting the best Master's thesis in Psychology by The George Washington University Chapter.

Ruggles Prize.—Established by Professor William Ruggles, awarded annually to a candidate for a Bachelor's degree for excellence in mathematics.

Doctor William G. Schaffert Prize.—Awarded annually to the senior student in the School of Medicine for the best original essay or thesis on some medical subject of current public interest.

Sigma Kappa Prize.—Awarded annually by Zeta Chapter to the student with the highest grade in the final examination in General Chemistry.

Sigma Tau Prize.—A medal awarded annually by the XI Chapter to the freshman in the School of Engineering and Applied Science who maintains the highest scholastic standing in the work of the entire year.

Society of Colonial Wars in the District of Columbia Prize.—A gold medal awarded to a candidate for a graduate degree who, in the judgment of the Faculty of the Department of History, submits a thesis or dissertation demonstrating excellence in historical research in American Colonial history. The University reserves the right to withhold the award if no thesis or dissertation attaining the required degree of excellence is submitted.

Staughton Prize.—Established by the Reverend Romeo Elton and awarded annually to the student making the best record in the most advanced course in the Latin language and literature.

James MacBride Sterrett, Jr., Prize.—Established by Professor Sterrett in memory of his son, consists of the *American Institute of Physics Handbook* awarded annually to the student who obtains the highest average in Physics 14, 15, and 16.

Charles Clinton Swisher Historical Club Prize.—A prize of \$100 established by the Charles Clinton Swisher Historical Club and augmented in 1941 by the bequest of Professor Swisher, is awarded annually to the student who submits the best essay covering some phase of medieval history.

Theta Tau Activities Plaque.—A plaque awarded annually by Gamma Beta Chapter to the senior in the School of Engineering and Applied Science with the most outstanding record in activities for the entire period of his attendance.

Thomas F. Walsh Prize.—A prize of \$150 awarded annually to the student who submits the best essay in Irish history.

Alexander Wilbourn Weddell Prize.—A prize of \$350 established by Virginia Chase Weddell in memory of her husband. Awarded annually to a candidate for a degree who writes the best essay on the subject of "the promotion of peace among the nations of the world." The prize essays shall become the property of the Uni-

versity and shall not be printed or published without the written consent of the University. The University reserves the right to withhold the award if no essay attaining the required degree of excellence is submitted.

MILITARY AWARDS

Society of American Military Engineers Gold Medal.—Awarded annually to selected Air Force ROTC cadets in the last two years of the engineering course.

National Defense Transportation Association Award.—Awarded to the outstanding senior graduate who qualifies for the Air Force Specialty of Air Transportation Officer or Surface Transportation Officer, in recognition of leadership qualities, academic standing, aptitude for military service, and meritorious achievement in furthering the aims and objectives of the Association in the promotion of preparedness for national defense.

Armed Forces Communications and Electronics Association Gold Medal.—Awarded annually to senior Air Force ROTC cadets majoring in Electrical Engineering for military and academic or nonacademic leadership.

Air Force Association Silver ROTC Medal.—Awarded annually to the outstanding cadet among those who have completed Summer Training and intend to apply for flying training.

Reserve Officers' Association Medals.—Gold, silver, and bronze medals awarded annually to those cadets enrolled in Air Science 101-2, 51 and 52, 21 and 22, respectively, who receive the highest grades for the current year in the leadership and academic phases of the Air Force ROTC course.

Chicago Tribune Gold ROTC Medal.—Awarded each semester to the cadet enrolled in Air Science 151-52 who has contributed most effectively to the Air Force ROTC program by leadership and scholastic excellence.

Chicago Tribune Silver ROTC Medal.—Awarded each semester to the cadet in ROTC Basic Course who has demonstrated outstanding leadership potential and maintained excellent scholastic standing.

Sons of the American Revolution ROTC Medal.—Awarded annually by the District of Columbia Society to the freshman of each Air Force ROTC flight who excels in qualities of good citizenship and meets the requirements prescribed by the donor.

Unit Leadership Trophy.—A silver trophy offered by Walter G. Bryte, Jr., Colonel, USAF (Retired), first Professor of Air Science at this University. Awarded annually to the flight judged best in a competitive review and inspection. The Cadet Commander of this flight is presented a set of engraved Second Lieutenant's insignia.

The Colonial Cadet Rifle Trophy.—Offered by Master Sergeant Jerome Gleason, USAF, first coach of the Air Force ROTC Rifle Team at this University. Awarded to the outstanding member of the rifle team.

Arnold Air Society Scroll.—Offered by the Carl Spaatz Squadron. Awarded annually to the outstanding cadet completing the basic course with a cumulative average of B or better in Air Force ROTC courses.

Pershing Rifles Gold, Silver, and Bronze Achievement Medals.—Awarded annually by the National Headquarters to outstanding Pershing Riflemen.

Republic Aviation Award.—An engraved identification bracelet offered by the Republic Aviation Corporation. Awarded annually to the cadet enrolled in Air Science

101-2 who, in competition, makes the most effective verbal presentation on the Air Power theme.

The Convair Award.—A Convair miniature airplane offered by the Consolidated Vultee Aircraft Corporation. Awarded annually to the cadet enrolled in Air Science 51 and 52 who achieves the highest cumulative grade in the basic course and who applies for flight training.

Reserve Officers' Association Junior Memberships.—Five junior memberships offered by the Reserve Officers' Association of the District of Columbia. Awarded annually to the five cadets with the highest grades in Air Science 101-2.

National Rifle Association Club Champion Medal.—Awarded to a sophomore, junior, or senior member of the Rifle Team outstanding in marksmanship, participation in team matches, and contribution to the effectiveness of the team.

National Rifle Association Qualification Medals.—Awarded annually to members of the Rifle Team qualifying as Expert, Sharpshooter, or Marksman in indoor rifle firing.

Professor of Air Science Award.—Awarded annually to the graduating senior cadet who has demonstrated outstanding leadership potential and contributed the most to furthering the aims of Air Force ROTC.

Military Order of World Wars Gold and Silver ROTC Medals.—Awarded annually to the numbers 1 and 2 Cadets, respectively, who have demonstrated scholastic excellence in both University and Air Science courses and have been appointed distinguished Air Force ROTC Cadets.

Air Force ROTC Rifle Team Awards.—Trophies, plaques, and medals awarded annually to Air Force ROTC Rifle Teams through successful competition in the following:

- The Air Force ROTC Liaison Area Championship Matches
- The Army and Area Intercollegiate and Interscholastic Matches
- The Secretary of the Air Force ROTC Rifle Match
- The William Randolph Hearst National ROTC Rifle Matches.

FINANCIAL AID

STUDENT EMPLOYMENT

Graduate and undergraduate student assistantships are available in several departments of the University. Application should be made to the chairman of the department of instruction concerned.

The Placement Office maintains a registry of positions available in many fields of work and refers qualified applicants for consideration.

LOAN FUNDS

The following loan funds are available to students in the University in accordance with the qualifications placed thereon by the donors. Students in the schools of En-

gineering and Applied Science, Law, and Medicine, should direct inquiries to and file applications with their respective deans. All other inquiries should be directed to the Office of the Vice President and Treasurer.

American Medical Association Medical Education Loan Guarantee Program.—Available to medical school students (beyond the first year of medicine).

George R. Beneman Law School Student Assistance Fund.—Available to students in the Law School who have completed at least one semester (day or evening) and have satisfactory records.

Edith K. Carr Medical School Loan Fund.—A fund of \$5,000 established by Mrs. Carr for loans to students in the School of Medicine.

Robert M. and Mary McConnel Cooper Law Student Loan Fund.—A fund of \$3,000, established by Professor and Mrs. Robert M. Cooper, is available to students who have completed at least one semester (day or evening) in the Law School and have satisfactory records.

Joseph H. Himes Loan Fund.—A fund of \$19,000 is available for loans to students in the School of Medicine.

Home Economics Loan Fund.—A fund of \$382 given by the D. C. Home Economics Association, is available for loans to senior girls majoring in Home Economics.

Jephson Educational Trust Loan Fund.—A fund of \$1,000, established by the Jephson Educational Trust Law Center Fund, is available to aid deserving law students in the pursuance of their studies.

Kellogg Foundation Hospital Administration Loan Fund.—A fund of \$10,000 for loans to full-time graduate students in hospital administration.

Kellogg Medical School Loan Fund.—A fund of \$22,000, established by W. K. Kellogg Foundation in Battle Creek, Michigan, for loans to students in the School of Medicine.

Law Association Loan Fund.—A fund of \$3,800, established by the George Washington Law Association, for loans to students in the Law School requiring less than 30 semester hours credit toward the degrees of Bachelor of Laws or Juris Doctor.

Law Class of 1912 Loan Fund.—A fund of \$500 is available to students in the Law School who have completed at least one semester (day or evening) and have satisfactory records.

Law Class of 1921 Loan Fund.—Available to students in the Law School who have completed at least one semester (day or evening) and have satisfactory records.

Law Class of 1929 Loan Fund.—Available to students in the Law School who have completed at least one semester (day or evening) and have satisfactory records.

Law Class of 1933 Loan Fund.—Available to students in the Law School who have completed at least one semester (day or evening) and have satisfactory records.

Law Class of 1935 Loan Fund.—A fund of \$1,300 is available to students in the Law School who have completed at least one semester (day or evening) and have satisfactory records.

Law Class of 1937 Loan Fund.—Available to students in the Law School who have completed at least one semester (day or evening) and have satisfactory records.

Law Class of 1950 Loan Fund.—Available to students in the Law School who have completed at least one semester (day or evening) and have satisfactory records.

Law Class of 1951 Loan Fund.—Available to students in the Law School who have completed at least one semester (day or evening) and have satisfactory records.

Law Class of 1952 Loan Fund.—Available to students in the Law School who have completed at least one semester (day or evening) and have satisfactory records.

Law Class of 1961 Loan Fund.—Available to students in the Law School who have completed at least one semester (day or evening) and have satisfactory records.

National Defense Student Loan Fund.—This fund is available to full-time undergraduate and graduate students who are in need of financial assistance. Priority is given applicants who express a wish to teach in elementary or secondary schools, and whose academic background indicates a superior capacity or preparation in science, mathematics, engineering, or a modern foreign language. After application for admission to the University has been completed, application on forms prescribed for this loan fund must be filed in the Office of the Vice President and Treasurer no later than (1) for the *fall semester*—June first for students currently registered in the University and July first for entering students; (2) for the *spring semester*—November fifteenth; (3) for the *Summer Sessions*—May first.

Mike Pelekiri Student Loan Fund.—A fund of \$1,300 is available to students in the Law School who have completed at least one semester (day or evening) and have satisfactory records.

Pfizer Medical School Loan Fund.—A fund of \$1,080, established by Chas. Pfizer & Co., Inc., for loans to students in the School of Medicine.

School of Medicine Loan Fund.—A fund of \$22,000, contributed by medical students, is available for loans to students in the School of Medicine.

Sutherland Medical School Loan Fund.—A fund of \$1,740, established by Rose L. Sutherland, for loans to students in the School of Medicine.

United Student Aid Funds.—This fund is available to full-time students who have completed their freshman year and are in need of financial assistance. Monthly repayments begin after student finishes either undergraduate or graduate education. After application for admission to the University has been completed, application on forms prescribed for this loan fund must be filed in the Office of the Vice President and Treasurer no later than (1) for the *fall semester*—June first for students currently registered in the University and July first for entering students; (2) for the *spring semester*—November fifteenth; (3) for the *Summer Sessions*—May first.

John Brewster Willis, Jr., Loan Fund in Mechanical Engineering.—A fund of \$1,515, established by Mrs. William L. Lane as a memorial to her nephew, John Brewster Willis, Jr., is available to Mechanical Engineering students (graduate or undergraduate) who are primarily interested in aeronautics.

Regulations

A student enrolled in the University is required to conform to the following University regulations and to comply with the rules and regulations of the college, school, or division in which he is registered.

A student who withdraws or is suspended, or is otherwise absent from the University for one semester or more, may re-enter and continue his work only under the rules and regulations in force at the time of his return.

If a student knowingly makes a false statement or conceals material information on an application for admission, registration card, or any other University document, his registration may be canceled and he will be ineligible (except by special action of the Faculty) for subsequent registration in any unit of the University.

ATTENDANCE

A student may not attend classes until registration is completed and fees due are paid. Regular attendance is required. A student may be dropped from any course for undue absence.

A student suspended for any cause may not attend classes during the period of suspension.

SCHOLARSHIP REQUIREMENTS

A student who fails to maintain the scholarship requirements of the college, school, or division in which he is registered may be dismissed from the University.

GRADES

Grades are mailed to the student through the Office of the Registrar at the close of each semester. They are not given out by instructors.

Undergraduate.—The following grading system is used: *A*, excellent; *B*, good; *C*, average; *D*, passing; *F*, failing. *CR* indicates credit. Whenever a grade has not been assigned the symbol *I* (incomplete) or the symbol *W* (authorized withdrawal) will be recorded. The symbol *I* indicates that a satisfactory explanation has been given the instructor for the student's failure to complete the required work of the course. An "incomplete" cannot be made up after the lapse of one calendar year except by written permission of the dean's council of the college, school, or division concerned. An incomplete which is not removed within one calendar year is automatically changed to an *F*. An incomplete cannot be removed by re-registering for the course. A student may not repeat for grade a course in which he has received a grade of *D* or above, unless required to do so by the department concerned. A written statement to this effect must be submitted to the Registrar by the appropriate departmental chairman.

Graduate.—For graduate work, grades are indicated as *E* (excellent), *S* (satisfactory), *U* (unsatisfactory), *I* (incomplete), *CR* indicates credit.

For the grading systems of the School of Medicine, the Law School, and the Graduate School of Public Law, see the explanations in the announcements of those schools. An incomplete cannot be removed by re-registering for the course.

THE QUALITY-POINT INDEX

Undergraduate.—Scholarship is computed in terms of the quality-point index, obtained by dividing the number of quality points by the number of semester hours for which the student has registered, both based on the complete record in this University.

Quality points are computed from grades as follows: *A*, four points; *B*, three points; *C*, two points; *D*, one point; *F*, no points, for each semester hour for which the student has registered. Courses marked *W* or *I* are not considered in determining the index, except that courses marked *I* will be considered when a formal grade is recorded. An incomplete which is not removed within one calendar year is automatically changed to an *F*. Grades in courses taken at another institution are not considered in computing the quality-point index.

EXAMINATIONS

Examinations are scheduled at the end of each semester or at the completion of the course.

ACADEMIC DISHONESTY

Evidence of dishonesty on the part of any student will result in his suspension from the University upon the recommendation of the appropriate dean's council.

A student found guilty of dishonesty will be suspended for a stated period and will be deprived of credit for all courses in which he is enrolled during the semester in which the dishonest act occurs. A disciplinary grade of "Failure—Academic Dishonesty" will be recorded for each such course, and this grade will be employed in computation of the quality-point index.

If a student suspended because of academic dishonesty should be readmitted, he may be required to repeat for grade all courses for which a disciplinary grade has been recorded, and both the grade earned on repetition and the disciplinary "Failure—Academic Dishonesty" grade will be employed in computation of the quality-point index.

WITHDRAWAL

Withdrawal from a course or from the University requires the permission of the dean of the college, school, or division in which the student is registered. Permission to withdraw from the University will not be granted a student who does not have a clear financial record. (See "Fees and Financial Regulations," pages 31 and 32-33.)

Withdrawal between the last working day* in October and the end of the fall semester and between the last working day* in February and the end of the spring semester is permitted only in exceptional cases. (See page 122 for regulations governing withdrawal from the School of Engineering and Applied Science.)

* The University work week is Monday through Friday, inclusive.

All charges for courses dropped without the approval of the dean must be met by the student. Reporting the dropping of a course to an instructor does not effect its discontinuance.

A student may not withdraw from either the basic course or the advanced course of the Air Force ROTC without the approval of the President of the University.

CHANGES IN PROGRAM OF STUDIES

Changes within a College, School, or Division.—A student may not change or drop courses (see "Withdrawal," above) or change his status to that of auditor except with the approval of the dean of the college, school, or division in which he is registered.

Change from one section to another of the same course may be made with the approval of the dean and the department concerned.

Change from one major subject to another within the same college or school may be made with the approval of the dean. All requirements of the course of study to which the change is made must be met.

Transfer within the University.—Transfer from one college, school, or division to another may be made only with the approval of the deans concerned. Except in cases of normal progression from the lower division of Columbian College of Arts and Sciences in a regular baccalaureate program, application for transfer must be made to the Director of Admissions on the form provided by his office.

Students wishing to transfer from the Division of University Students to a degree granting college or school of the University should note that consideration will be given only to courses approved as applicable toward the degree sought and that a maximum of 45 semester hours will be accepted in transfer.

Students transferring within the University are advised to study carefully the graduation requirements on pages 57, 60 and to note that in all undergraduate divisions, except the lower division of Columbian College of Arts and Sciences and the College of General Studies, 30 semester hours, including at least 12 semester hours in the major field, must be completed in residence in the school or college from which the degree is sought. Upon transfer the student should consult the dean concerned and understand clearly the requirements he must fulfill. (For residence requirements in the lower division of Columbian College of Arts and Sciences, see pages 69 and 75. For information concerning the College of General Studies, see the College of General Studies Catalogue.)

CREDIT

Credit is given only after registration for a course and satisfactory completion of the required work, or upon the assignment of advanced standing in accordance with the regulations of the several colleges, schools, and divisions.

On request the Registrar will issue to undergraduate degree candidates a balance sheet showing the amount of work completed and the requirements remaining to be met for the degree. A second balance sheet will be issued only in the event the student changes major or degree objectives.

In special instances, a person who has been admitted to the University may be registered, with the permission of the instructor, as an "auditor" in a class (no academic credit). An auditor is not required to take active part in the exercises or to

take examinations. A student who takes a course as an auditor may not take the same course later for credit.

TRANSCRIPTS OF RECORD

Official transcripts of student records will be issued on request of the student or former student. A fee of one dollar is charged for each transcript. No transcript will be issued for a person who does not have a clear financial record.

SUMMER SCHOOL CREDIT

A student who plans to attend summer school sessions at another institution with the intention of having credits so obtained apply toward graduation from this University must first secure the written approval of the dean of his college or school. In no event will such credits be recognized to an amount in excess of that which might be earned in a similar period in this institution.

PHYSICAL EDUCATION REQUIREMENTS

Freshman and sophomore students in Columbian College of Arts and Sciences (except those enrolled in the Physical Education curriculum) are required to take Physical Education 1-2 and 11-12 unless they are registered for less than 9 semester hours or unless regular employment during the day makes it necessary to take all classes during the evening hours. Air Force ROTC cadets and a limited number of freshman and sophomore women may substitute Air Science 1-2 and 11-12 for the physical education requirement.

Any other exemptions will be granted only upon written petition which has been recommended by the physical education department concerned and approved by the dean of the college or school in which the student is registered.

Students exempt from the physical education requirement must substitute four hours of elective.

A student entering the University with advanced standing is not exempt from the physical education requirement unless he has satisfactorily met the requirement elsewhere.

The required medical and physical examinations, as specified by the departments of physical education, will be arranged at the time of registration.

GRADUATION REQUIREMENTS

To be recommended by the Faculty for graduation a student must have met the admission requirements of the college or school in which he is registered, completed satisfactorily the scholarship, curriculum, residence, and other requirements for the degree for which he is registered, and be free from all indebtedness to the University.

Application for Graduation.—Application must be filed in the Office of the Registrar at the time of registration for the last semester or summer session of the senior or final year. Students expecting to complete requirements for degrees during the Summer Sessions must apply for graduation as a part of registration for the Summer Sessions.

Scholarship.—In all undergraduate divisions of the University a quality-point index of at least 2.00 is required for graduation.

The graduate student must meet the scholarship requirements for the particular degree for which he is registered.

Curriculum.—Minimum curriculum requirements for each degree are stated under the college or school offering work in preparation for the degree. (For Air Force ROTC graduation requirements see the Department of Air Science.)

Residence.—Unless otherwise specified, in all undergraduate divisions of the University, a minimum of 30 semester hours, including at least 12 hours in the major field, must be completed in residence in the school or college from which the degree is sought. This requirement applies to students transferring within the University as well as to students transferring from other institutions. Summer work may be counted in residence, but in no case may the period of residence aggregate less than thirty weeks. Unless special permission is granted by the dean of the college or school concerned to pursue work elsewhere, the work of the senior or final year must be completed in residence.

The graduate student must meet the residence requirements for the particular degree for which he is registered.

In Residence Status.—A student who is absent from the University for one semester or more is required to satisfy the curriculum requirements existing at the time of his return unless during his absence he maintains "in residence" status by paying the appropriate fee, see page 31.

The student who has completed his tuition requirements, but whose graduation is deferred for any reason, must maintain "in residence" status by paying the residence fee.

Graduate Record Examination.—All candidates for Bachelor's degrees in Columbian College of Arts and Sciences; the School of Engineering and Applied Science; the School of Government, Business, and International Affairs; and the College of General Studies are required to take two parts of the Graduate Record Examination in the University's institutional testing program. The examinations are conducted by the University twice a year: the Fall Testing Session (December 12, 1964) for seniors graduating in February, and the Spring Session (April 10, 1965) for those graduating in June. Students expecting to complete degree requirements during the Summer Sessions should take the examination in the Spring Session. Dates of the examinations are announced in the *Schedule of Classes*.

Each senior required to take the Graduate Record Examination must register for it in the office of his dean when he registers for his final regular semester of study (excluding summer sessions). A \$10 examination fee is payable at the time of registration.

National Teacher Examinations.—All candidates for the Bachelor of Arts degree in the School of Education are required to take the National Teacher Examinations. Those expecting to graduate in June should take the examinations the previous December or March; those expecting to graduate in February, in July or October. Students expecting to complete degree requirements during the Summer Sessions should take the examinations in March or July.

Students will receive individual reports of test scores and may avail themselves of the regular transcript services of the Educational Testing Service. A copy of test scores must be forwarded to the School of Education.

Each senior required to take the National Teacher Examinations must register for them in the office of the Dean at least thirty days prior to the date of the adminis-

tration of the examinations. Details concerning time, place, registration, and fees may be obtained in the Office of the School of Education.

See the announcements of the various schools and colleges in this CATALOGUE for a description of the tests required.

Attendance and Conduct.—The University reserves the right to refuse to confer a degree upon a candidate whose attendance or conduct has been unsatisfactory.

Thesis or Dissertation.—A thesis or dissertation submitted in partial satisfaction of requirements for a degree, must be presented in its final form to the dean of the college or school concerned no later than the date specified in the University calendar. Three complete copies of each are required. It is the responsibility of the candidate for a graduate degree to obtain from his dean a printed copy of the regulations governing the styling and reproduction of theses and dissertations, which are rigidly enforced.

Accepted theses or dissertations, with accompanying drawings, become the property of the University and are deposited in the University Library, where the duplicate copies are bound and made available for circulation. Permission to publish or adapt material in them must be secured from the appropriate dean.

Graduation in Absentia.—Application for graduation *in absentia* must be submitted to the appropriate dean.

HONORS

With distinction.—In all undergraduate divisions of the University the degree may be conferred "with distinction", at the discretion of the Faculty, if a student attains a quality-point index of 3.50 or higher on all work taken at this institution. To be eligible for this honor a student must have completed at this institution at least one-half of the work required for the degree.

In the School of Medicine and the Law School, degrees may be conferred "with distinction", at the discretion of the Faculty, on those students who attain an average of *A* on all work taken for the degrees.

Special honors.—Special honors may be awarded by the Faculty to any member of the graduating class for outstanding achievement in the student's major field of work on recommendation of the major department, under the following regulations:

1. The student must have his candidacy for special honors approved by the faculty member representing the major department or field not later than the beginning of the senior year.

2. The student must meet such other conditions as may be set at the time his candidacy is approved.

3. No student will be awarded special honors unless he has a quality-point index of at least 3.00 on all work taken at this institution.

4. To be eligible for honors a student must have completed at this institution at least one-half of the work required for the degree.

Military honors.—An Air Force ROTC cadet may be designated a "Distinguished Air Force ROTC Cadet" if he (1) has completed Air Science 101 and 102 with an academic standing among the upper third of the students enrolled therein; (2) has an accumulative academic average of *B* or better; (3) possesses high moral char-

acter and definite aptitude for service in the Air Force; (4) has distinguished himself by demonstrated leadership through participation in recognized extracurricular activities and while in attendance at an Air Force ROTC Summer Training Unit. A "Distinguished Air Force ROTC Cadet" is authorized to wear a "Distinguished Cadet" badge above the right breast pocket of the uniform. He may submit an application for a regular commission in the United States Air Force, which is given final consideration upon his designation as a "Distinguished Air Force ROTC Graduate."

An Air Force ROTC cadet may be designated a "Distinguished Air Force ROTC Graduate" if he has (1) been designated a "Distinguished Air Force ROTC Cadet" and maintained the standards required of a "Distinguished Air Force ROTC Cadet" during the period between designation and graduation; (2) completed the Air Force ROTC Advanced Course; and (3) completed the requirements for a Bachelor's degree. A "Distinguished Air Force ROTC Graduate" will be presented with a certificate signed by the Commandant, Air Force ROTC, and, if he made application, will be considered for a regular commission in the United States Air Force.

THE LIBRARY

A student registered in the University is entitled to the reference use of the University Library. The Student Identification Card issued upon the payment of fees, must be presented as identification.

The loan period for most books available for home circulation is two weeks, with an additional two-week renewal. A fine of five cents will be charged for each day a book is overdue. Any book which does circulate is subject to recall by the Librarian at any time. Reserve books for collateral reading must be used in the reading rooms when the Library is open. With special permission they may be drawn for overnight use when the Library closes. A fine of twenty-five cents will be charged for the first hour or fraction of an hour and five cents for each hour or fraction thereafter that a reserve book is overdue. Grades of a student will be withheld until his library record is clear.

RIGHT TO DISMISS STUDENTS

The right is reserved by the University to dismiss or exclude any student from the University, or from any class or classes, whenever, in the interest of the student or the University, the University Administration deems it advisable to do so.

RIGHT TO CHANGE RULES

The University and its various colleges, schools, and divisions reserve the right to modify or change requirements, rules, and fees. Such regulations shall go into force whenever the proper authorities may determine.

PROPERTY RESPONSIBILITY

The University is not responsible for the loss of personal property in any University building. A "Lost and Found" Office is maintained in the Student Union.

Columbian College of Arts and Sciences

THE FACULTY AND STAFF OF INSTRUCTION*

C. D. Linton†, *Dean of Columbian College of Arts and Sciences*; G. M. Koehl, *Associate Dean of Columbian College of Arts and Sciences*; R. W. Stephens, *Assistant Dean of Columbian College of Arts and Sciences*; W. L. Turner, *Assistant Dean in Columbian College of Arts and Sciences*; J. C. King, *Assistant Dean in Columbian College of Arts and Sciences*; J. L. Metivier, Jr., *Adviser to Special Students in Columbian College of Arts and Sciences*

Professors J. G. Allee, Jr., J. W. Brewer‡, H. F. Bright, A. E. Burns, Elizabeth Burtner, Paul Calabrisi, R. D. Campbell‡, W. G. Clubb, J. H. Coberly, C. W. Cole, W. C. Davis§, R. H. Davison, V. J. DeAngelis, A. H. Desmond, J. L. Finan, C. E. Gauss, H. L. Geisert, Wood Gray, A. M. Griffin, R. G. Hanken, I. B. Hansen, J. W. Harkness, G. F. Henigan, Jr., P. H. Highfill, Jr., T. W. Holland, Thelma Hunt, Herbert Jehle, E. H. Johnson, F. E. Johnston, E. L. Kayser, J. W. Kendrick, D. C. Kline, G. M. Koehl, W. H. Kraus, J. H. Krupa, Solomon Kullback, J. F. Latimer, Helen Lawrence, C. E. Leese, L. P. Leggette, W. K. Legner, Sar Levitan (*Research*), B. I. Levy, Edwin Lewis, C. D. Linton†, G. L. Lippitt, T. P. G. Liverman, Kurt London, W. A. MacDonald, H. G. Mandel‡, G. E. McSpadden, Florence Mears, H. M. Merriman, R. H. Moore, Edith Mortenson, J. N. Mosel, S. C. Munson, W. H. Myers, C. R. Naeser, N. D. Nelson†, R. C. Parlett, T. M. Peery, T. P. Perros, C. W. Pettit, E. L. Phillips, R. E. Purcell (*Visiting*), J. P. Reising, Jr., Mary Robbins, Gretchen Rogers, W. F. Sager, Minoru Sakaguchi (*Visiting*), R. P. Schlabbach, Jr., William Schmidt, Wilson Schmidt§, E. S. Shepard, J. R. Sizoo, J. W. Skinner, R. W. Stephens, E. L. Stevens, R. B. Stevens, C. T. Stewart, Jr. (*Research*), Rafael Supervia, Giza Teleki, L. R. Telford, R. B. Thompson, C. R. Treadwell, B. D. Van Evert, Samuel Van Valkenburg (*Visiting*), L. A. Vigneras, R. C. Vincent, R. H. Walker, Jr., D. S. Watson, R. L. Weintraub, H. W. Westermann§, D. G. White, N. A. Wiegmann, R. E. Wood‡, S. N. Wrenn

Adjunct Professor Stephen Enke

Professorial Lecturers C. L. Christ, Ira Cisin, D. M. Dribin, Grace Evans, H. T. Evans, Jr., Zelda Fichandler, Michael Fleischer, Seymour Geisser, Samuel Greenhouse, F. L. Hadel, Nicholas Hotton, Margaret Ives, K. C. Kates, G. O. Kent, Morton Kupperman, W. H. Marlow, R. E. Moor, R. P. Muthauf, C. L. Perian, F. M. Riddick, Thomas Saaty, L. B. Smith, I. G. Sohn, R. K. White

* Professors, Adjunct Professors, Associate Professors, and Instructors constitute the Faculty and Staff of Instruction for the academic year 1963-64

† On sabbatical leave spring semester 1963-64.

‡ On leave of absence spring semester 1963-64.

§ On leave of absence 1963-64.

Associate Professors Caroline Adams, F. D. Allan, Joseph Aschheim, J. M. Bailey, Otto Bergmann, Lee Bielski, R. G. Brown, W. E. Caldwell, J. M. Campbell, G. V. Carroll, J. W. Coughlan, J. T. Davis, J. A. Frey, R. E. Gajdusek*, Lyndale George†, R. C. Haskett, C. W. Hill, H. H. Hobbs, Rudolph Hugh, Ludvik Janos (*Visiting*), Eva Johnson, R. G. Jones, J. M. Kaper (*Research*), Hewitt Kenyon, J. C. King, Virginia Kirkbride, F. C. Kurtz, H. L. LeBlanc, L. P. Leite, Hortense Louckes (*Research*), H. R. Ludden†, W. L. Marsh, G. E. Mazzeo, Muriel McClanahan‡, Joseph Monane (*Research*), Benjamin Nimer, J. W. Pierce, J. W. Robb‡, Carol St. Cyr, R. H. Schlagel, L. E. Schlesinger (*Research*), R. P. Sharkey, B. W. Smith, W. A. Smith, Henry Solomon (*Research*), Loretta Stallings§, C. S. Tidball, W. L. Turner, C. E. Tuthill, G. V. Vahouny, R. D. Walk, Guenter Weissberg (*Visiting*), R. C. Willson, Elizabeth Wright, Helen Yakobson‡, A. J. Zuchelli

Associate Professorial Lecturers H. M. Bain, Jr., S. L. Berlinsky, Joseph Blum, H. M. Cathey, D. J. Edwards, W. J. Eisen, Edward Haeskavlo, Frances Henry, R. K. Kahn, E. G. Kauffman, H. H. Landon, Jr., Kittie Parker, Robert Parris, Herbert Rabin, J. I. Robertson, Jr., Robert Sammons, Edwin Shutts, R. S. Sigafos, Robert Stewart, J. C. Wang

Assistant Professors Fred Abrams, S. P. Bjorklund, R. R. Bonato (*Research*), L. D. Bothwell, Jeanette Clapp, Louise Clubb, R. R. Columbus, Dolan Earle, Jr., Margaret Ethier, Nicholas Filipescu, M. G. Gallagher, P. F. Gallagher, A. R. Cassaway, Michael Gasser, Lila Ghent (*Research*), Jacqueline Goodnow (*Research*), E. Harrison, J. M. Harrison, Charles Herber, P. P. Hill, Mary Holman (*Research*), Robert Honeygosky, Ching-Yao Hsieh, S. J. Hunter, R. W. Kenny, B. J. Leach, M. E. Lyon, Margaret McIntyre, J. L. Metivier, Jr., M. W. Montzka†, R. E. Nolan, G. A. Olkhovsky, H. D. Osterle, H. R. Page, C. H. Pfuntner, Nadine Popluiko, R. C. Rutledge†, K. R. Sanders, Geza Schay, R. C. Sentz, Jeanne Snodgrass, George Steiner, D. H. Teller, Klaus Thoenelt, R. E. Thomas, Elizabeth Tidball (*Research*), R. Z. Vause, Dewey Wallace, Jr., S. S. Yeandle, Jr., H. E. Yeide, Jr.

Lecturers E. M. Archer, J. R. Buchheit, Marian Burke, W. J. Condell, Jr., F. L. Dennis, Milenko Filipovitch-Nikatch, Paul Gekker, S. E. Haber, R. H. Harmon, J. V. Hinkel, Janet Johnson, Richard Lafean, Richard Lahey, Esther Lawton, Florence Lowndes, Jacqueline Meyer, J. J. Monroe, Mabel Morris, Cynthia Nathan, A. A. Nilles, K. F. Oerlein, Jack Perlmutter, Louis Robinson, John Ruddley, Alexander Russo, N. O. Scribner, Jr., E. W. Seaman, A. B. Seidman, E. I. Shook, W. A. Shropshire, Jr., C. H. Slayman, Jr., T. R. Smith, Selig Starr, Edith Surrey, Joseph Taney, J. N. Tevis, Margaret Tolson, Don Turano, Heinz Warneke, Jule Zabawa

Instructors Donna Abbey, Dorothy Clark, L. E. Dodd, Arlyn Edelman, Carlos Figueroa, G. P. Huvé, G. C. Landon, J. A. L. Lemay, Eulogia Llansa, R. F. Marler, Jr., Kathleen Mason, Elizabeth Neyman, Pratip Raychowdhury, R. M. Riggs, J. R. Roman, Jr., Judith Searle, Nan Smith, F. R. Turaj, Ruth Weinreb

Associates Eileen Allen, Booth Beers, K. T. Simendinger, J. S. Toomey, Dana White

* On leave of absence fall semester 1963-64.

† On leave of absence 1963-64.

‡ On sabbatical leave spring semester 1963-64.

§ On sabbatical leave 1963-64.

|| On leave of absence spring semester 1963-64.

COMMITTEES*

LOWER DIVISION

THE DEAN'S COUNCIL†

1964: G. E. Mazzeo, Elizabeth Wright; 1965: J. M. Campbell, J. W. Harkness;
1966: Eva Johnson, T. P. G. Liverman

COMMITTEE ON ADMISSION AND ADVANCED STANDING

G. M. Koehl (*Chairman*), C. J. Herber, J. C. King, Margaret Montzka, J. R. Roman, Jr., Carol St. Cyr

COMMITTEE ON SCHOLARSHIP

W. L. Turner (*Chairman*), R. G. Hanken, J. C. King, Muriel McClanahan, J. L. Metivier, Jr., Edith Mortensen, R. C. Vincent

ADVISORY COMMITTEE

G. M. Koehl (*Chairman*), J. C. King, J. H. Krupa, Margaret McIntyre, J. L. Metivier, Jr., J. R. Roman, Jr., Carol St. Cyr, W. A. Smith, Loretta Stallings, W. L. Turner, R. C. Vincent

UPPER AND GRADUATE DIVISIONS

THE DEAN'S COUNCIL

1964: R. C. Haskett, C. E. Tuthill; 1965: J. A. Frey, Benjamin Nimer; 1966:
Dolan Eargle, Jr., Klaus Thoenelt

COMMITTEE ON ADMISSION AND ADVANCED STANDING

R. W. Stephens (*Chairman*), Edith Mortensen (*Secretary*), C. W. Cole, P. P. Hill, W. F. Sager

COMMITTEE ON THE USE OF CORRECT ENGLISH

R. H. Moore (*Chairman*), J. G. Allee, Jr., C. F. Henigan, Jr., Muriel McClanahan, R. C. Willson

COMMITTEE ON SCHOLARSHIP

Florence Mears (*Chairman*), Louise Clubb, J. A. Frey, H. M. Merriman, S. N. Wrenn

COMMITTEE ON STUDIES

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* The Dean of Columbian College of Arts and Sciences is a member ex officio of all committees.
† Elected by the Faculty.

INTRODUCTION

Since its founding in 1821, Columbian College of Arts and Sciences, the liberal arts college of The George Washington University, has continued to expand and develop with the city of Washington. Its central situation, close to the buildings of the Federal Government, the concert halls, art galleries, and the parkway along the Potomac River, makes participation in the life of the Nation's Capital convenient for resident students. The cosmopolitan nature of the student body reflects the atmosphere of a great world capital. Because the students come from the fifty states and from eighty-two foreign countries, class discussions and casual student conversation are enriched by a challenging variety of viewpoints.

Columbian College offers undergraduate and graduate programs leading to Bachelor's and Master's degrees: prelegal and premedical programs; the first two years of the professional programs in Education; and in Government, Business, and International Affairs; and two-year terminal curricula in Accounting and Physical Sciences.

All entering freshmen and transfer students of less than junior class standing, except those in the fields of engineering and applied science, enter the lower division of Columbian College. This division is primarily concerned with providing (1) the personal and academic guidance needed by beginning college students in adjusting to college life and in selecting and preparing for a major field and (2) the broad cultural foundations in language and literature, science, and social studies on which major-field specialization in the upper division is built.

During the junior and senior years the student is in the upper division, where he is guided by his major-field adviser. A student who plans to continue toward a Master's degree should plan his Bachelor's program so that it will prepare him for the graduate work of his interest.

Programs leading to the Master's degrees are offered by the graduate division of Columbian College. Students planning to work toward the degree of Doctor of Philosophy may be given provisional status in the Graduate Council, which administers the doctoral programs, during the first year of graduate study, or they may register as Master's candidates in Columbian College and apply for transfer to the Graduate Council upon completion of 24 semester hours of approved graduate work.

THE COLUMBIAN COLLEGE PROGRAM

The Columbian College program is a contemporary application of the historic liberal arts tradition. Its purpose is to enable the student to develop harmoniously both his particular abilities and his general awareness as a human being. It demands of the student a thorough acquaintance with one major area of learning and at the same time an understanding of how that field of specialization fits into the larger context of the scientific, social, and moral problems which confront modern man. It stresses not merely expertness but that broadly enlightened expertness which encourages its graduates to grow through the years in ability and wisdom.

REGULATIONS

Regulations regarding ADMISSION, REGISTRATION, FEES AND FINANCES are stated on pages 15-33; other University regulations, on pages 54-60.

AMOUNT OF WORK

A full-time student who is not on probation may take ordinarily not more than 17 semester hours. A student employed more than 20 hours a week, who is not on probation, may take not more than 10 hours.

The amount of work taken by a student on probation is limited by the Committee on Scholarship.

A full-time student whose quality-point index is 3.50 or higher may take not more than 19 hours. An employed student who meets the same standard may take not more than 12 hours.

A student who accepts employment after registration or at any time during a semester must report that fact immediately to the Dean so that his program may be adjusted, if necessary.

ATTENDANCE

The student is held responsible for all the work of the course in which he is registered, and all absences must be excused by the instructor in charge before provision is made for the student to make up work missed. Excessive absence in any course will lead to loss of credit in that course, even though other requirements, such as tests, term papers, and examinations, are met.

A student whose absences from any class, whether excused or unexcused, are in excess of one-fourth of the total number of class periods will receive the grade of F for the course, except by special ruling of the Dean on recommendation of the instructor.

USE OF CORRECT ENGLISH

The use of correct English, oral and written, is required in all courses. Any student whose English in any course whatever is deemed unsatisfactory may be reported by the instructor to the Dean and to the Committee on the Use of Correct English. The Chairman of the Committee may assign supplementary work, without academic credit, varying in amount with the needs of the student. If the work prescribed is equivalent to a course, the regular tuition fee is charged. The granting of a degree may be delayed by failure to make up any such deficiency in English to the satisfaction of the Committee and the Dean.

HONORS

Lower Division Honor Roll.—The name of every lower division student who has a quality-point index of 3.50 or higher on the basis of his complete record at this University is placed on the honor roll and published. To be eligible, the student must have completed no less than 15 semester hours. (A place on the honor roll does not necessarily mean that the student will receive honors upon graduation.)

Dean's List.—The name of every student who makes a quality-point index of 3.50 or higher on a minimum of 15 semester hours of work taken in any one semester is placed on the Dean's List for that semester.

PROBATION

An undergraduate student must maintain a quality-point index of at least 2.00 or be placed on probation. He remains on probation as long as his index is below 2.00.

The student whose average is 2.00 or below for work undertaken during this probationary period is suspended. The student whose over-all quality-point index is still below 2.00 but whose average for work undertaken during the probationary period is above 2.00 may be continued on probation by the Committee on Scholarship.

SUSPENSION

An undergraduate student whose index falls below 1.50 or who is placed on probation for a third semester, whether successive or after an interval, is suspended.

A student suspended for poor scholarship may apply for readmission after an interval of one calendar year. He must then submit evidence to the Committee on Admission and Advanced Standing that during his absence from the University he has so conducted himself as to indicate that he will profit by readmission. A student suspended twice for poor scholarship will not be readmitted.

Mid-semester Warning.—At the end of the seventh week of each semester, instructors file in the Office of the Dean the names of freshman and sophomore students who are doing work of *D* grade or lower. A notice of Warning is sent to the student and a copy filed with the appropriate adviser. A "warning" constitutes notice to the student that he must consult his instructor and adviser at the earliest opportunity.

The foregoing scholarship rules are applied to a student with a limited schedule only when he has undertaken a minimum of 15 semester hours.

CORRESPONDENCE AND HOME-STUDY COURSES

No credit is given for work done by correspondence or in home-study courses.

CLASSIFICATION OF STUDENTS

A *freshman* is a student who is in the process of completing 32 semester hours, including 18 hours of his curriculum requirements.

A *sophomore* is a student who has completed between 32 and 64 hours, including 18 hours of his curriculum requirements.

A *junior* is a student who has completed between 64 and 94 hours and filed the declaration of his major, approved by his adviser, in the Office of the Dean.

A *senior* is a student who has completed between 94 and 124 hours, including at least 6 hours of second-group work in his major.

A *master in course* is a student who has satisfactorily completed the work for the Bachelor's degree and filed his approved program of study in the Office of the Dean.

A *special student* is a student not immediately eligible for unqualified degree candidacy but admitted to Columbian College to demonstrate ability in a prescribed program or to make up deficiencies.

Undergraduate Programs

The Lower Division

A student in the lower division is given the opportunity of taking a wide range of liberal arts subjects—humanities, foreign languages, sciences, social studies—both as a means of laying the ground work for the more concentrated major-field study in the upper division and as a means of determining what academic area is best adapted to his interests and aptitudes. In order to insure that these general educational requirements are met, the student is not permitted to anticipate major-field special courses until all basic areas are covered.

ADVISORY SYSTEM

Each student in the lower division is provided with two kinds of counseling. Academic advising is performed by members of the Faculty selected for their knowledge of freshman-sophomore requirements and programs, and each student makes up his program in consultation with the adviser assigned to him before registration. Personal counseling is also available to all students, particularly those who find it difficult to adjust to college life. Each student is, on request, assigned to a member of the Faculty to whom he may go for personal, nonacademic assistance. All students are encouraged to maintain close contact both with their academic and their non-academic Faculty advisers.

An academic warning system permits early attention to students whose work falls below required standards. In such cases, students are required to consult regularly with their advisers. On request, copies of academic warnings or probation notices may be sent to parents or guardians, who are themselves welcome to meet with members of the advisory staff.

Preprofessional Students.—Preprofessional students who intend to transfer after the sophomore year to the School of Education or to the School of Government, Business, and International Affairs are registered in the lower division to complete the curriculum requirements specified by each professional school. Such students are assigned special advisers to assist them in planning their programs.

REQUIRED PLACEMENT EXAMINATIONS

English.—Special placement examinations, required of all entering freshmen, are conducted by the English Department. Before students are registered in English 1, they are tested in the minimum essentials of vocabulary, spelling, grammar, standard usage, and writing skill. Those who show marked superiority may, upon passing fur-

ther tests, be exempted from one or both halves of the English Composition course; those who are inadequately prepared are assigned to English 1X.

Foreign Languages.—A standardized placement examination is required of all entering students who wish to continue in college the language begun in high school (French, German, Russian, or Spanish). Upon completion of the examination, assignment is made to the appropriate course.

Mathematics.—Special placement examinations are required of all entering freshmen who expect to register for courses in mathematics. Students showing deficiencies may be assigned to remedial work.

FIRST- AND SECOND-GROUP COURSES

A freshman or sophomore may take second-group courses (courses numbered 101-200) only with the written permission of the Instructor and of the Dean*. A student is not permitted to postpone a required first-group course in order to take a second-group course for elective credit. The principle that first-group courses must be taken in the freshman and sophomore years, and advanced courses in the junior and senior years in Columbian College and the professional schools, is rigidly adhered to in approving student programs. Freshmen and sophomores on probation may take second-group courses only with the written permission of the Committee on Scholarship.

PROFESSIONAL COURSES

Except for students intending to apply for the combined degrees of Bachelor of Arts and Doctor of Medicine or the degree of Bachelor of Science in Medical Technology, not more than 12 hours of professional courses may be included in the 124 hours required for the Bachelor's degrees in Columbian College. Lower division students electing professional courses under this rule must obtain the approval of the Dean before registration.

PHYSICAL EDUCATION REQUIREMENT

Freshmen and sophomores (except those enrolled in the Physical Education curricula) are required to take Physical Education 1-2 and 11-12 unless they are registered for less than 9 semester hours or unless regular employment during the day makes it necessary to take all classes during the evening hours. Air Force ROTC cadets and a limited number of freshman and sophomore women may substitute Air Science 1-2 and 11-12 for the physical education requirement.

Any other exemptions will be granted only upon written petition which has been recommended by the physical education department concerned and approved by the Dean. Students exempt from the physical education requirement must substitute four hours of elective.

A student entering the University with advanced standing is not exempt from the physical education requirement unless he has satisfactorily met the requirement elsewhere.

The required medical and physical examinations, as specified by the departments of physical education, will be arranged at the beginning of each semester.

* Students enrolled in the Medical Technology program, or in the two-year terminal curriculum in Accounting, may take those second-group courses which are specified as part of their freshman-sophomore curricula without obtaining the written permission of the Instructor or the Dean.

FOREIGN LANGUAGE REQUIREMENT

In curricula requiring foreign languages a student must complete satisfactorily the equivalent of two years of college work in a single foreign language.

A student offering for admission four acceptable high school units of a single foreign language, or the equivalent, is not required to take any foreign language.

A student who offers less than four units and wishes to meet the requirement by continuing in the same language must take the language placement test (see page 68).

In general, one year of high school language is considered equivalent to one semester of college language.

In some instances foreign languages are required or recommended as preparation for advanced work in Columbian College and the professional schools. The student should consult his adviser as to these requirements, so that appropriate foreign languages may be included, when necessary, in his lower division program.

ENGLISH REQUIREMENT

Entering students registered in the liberal arts and sciences curricula must follow the sequence of English 1 or 1X, both halves of one of the introductory literature courses, and English 4. This does not apply to students transferring to these curricula or students registering in the preprofessional or terminal curricula.

EXAMINATIONS FOR WAIVING CURRICULUM REQUIREMENTS*

A required course may be waived and admission to an advanced course granted by the satisfactory passing of a waiver examination prescribed by the department concerned. Passing this examination does not entitle the student to any hours of credit toward the degree. Written request to take the examination should be made to the Dean and the required fee paid at the Office of the Cashier before taking the examination.

Lower Division Curricula

Each of the following curricula comprises the first two years of a standard four-year college course.

All curricula in this group lead to the degree of Associate in Arts. Students wishing to receive this degree must apply at the Registrar's Office at the time of registration for the fourth semester. The last 15 semester hours must be spent in residence in Columbian College.

* This provision does not apply to the premedical student, all of whose required premedical work must be taken in a recognized college of arts and sciences.

IN PREPARATION FOR THE UPPER DIVISION OF COLUMBIAN COLLEGE:

Arts and Letters

First two years of the Bachelor of Arts curriculum:

	Semester Hours
English Composition and Literature English 1 or 1X, 51-52, 71-72, 91-92, Classical Lan- guages 71-72, French 51-52, German 51-52, Slavic Languages 91-92 or 93-94, or Spanish 51-52; Eng- lish 4	12
Foreign Language See page 69 for foreign language requirement.....	12
Physical Education See page 68 for statement of requirement.....	4
Science Biology 1-2; Chemistry 3-4, 11-12; Geology 1-2 or 1 and 12; or Physics 1-2 or former 11 and 12.....	6-8
Social Studies Economics 1-2; Geography 51, 52; History 39-40, 71-72; Political Science 9-10; or Anthropology 1 and Sociology 2.....	6
Elective*	22-24
Total.....	64

Science

First two years of the Bachelor of Science and the Bachelor of Science in Medical Technology curricula. Medical Technology students must include Biology 1-2, Chemistry 11-12, and Microbiology 211 and 212; these courses satisfy the science requirements for the Medical Technology student.

	Semester Hours	
English Composition and Literature	English 1 or 1X, 51-52, 71-72, 91-92, Classical Lan- guages 71-72, French 51-52, German 51-52, Slavic Languages 91-92 or 93-94, or Spanish 51-52; Eng- lish 4	12
Foreign Language	French, German, Russian, or nonscience elective..... NOTE.—A reading knowledge of French, German, or Russian is required. This may be satisfied by French 4, German 4, or Russian 4 or by special ex- amination.	12
Mathematics	Mathematics 3, 6, or electives..... NOTE.—The Mathematics 3 requirement may be satisfied by offering two years of high school algebra, acceptable for admission; the Mathematics 6 require- ment may be satisfied by offering one-half year of high school trigonometry acceptable for admission.	6
Physical Education	See page 68 for statement of requirement.....	4
Science	Biology 1-2	8
	Chemistry 11-12, Geology 1-2 or 1 and 12, Physics 1-2 or former 11 and 12 or 11 and 14.....	12-14

* It is suggested that electives include one of the following courses: Art 31-32, 71-72; Philosophy 51-52; Religion 9-10, 59-61.

Students enrolled in the Medical Technology program should elect Microbiology 211 and 212. The student should obtain the advice of his major department as to proper prerequisite and collateral courses for the intended major.

Credit is not given for courses elected in Secretarial Studies; credit may be given for a limited number of courses elected in Physical Education, with the approval of the Dean.

	Semester Hours
Social Studies Economics 1-2; Geography 51, 52; History 39-40, 71-72; Political Science 9-10; or Anthropology 1 and Sociology 2.....	6
Elective*	2-4
Total.....	64

Premedical

Premedical students may follow either the Arts and Letters or the Science curriculum above in fulfilling the first 60 semester hours of the premedical requirement. Each premedical program must be approved by the premedical adviser.

A minimum of 90 semester hours applicable toward a degree in an approved College of Arts and Sciences including:

Biology (including 4 hours of laboratory).....	8
A course in either general biology or zoology	
Chemistry:	
Inorganic (including 4 hours of laboratory).....	8
Qualitative analysis may be counted as part of this requirement	
Organic (including laboratory).....	6-8
The equivalent of a one-year college course	
English Composition and Literature.....	6
Physics (including at least 2 hours of laboratory).....	8

With the exception of these specific requirements applicants are urged to follow their personal interests in developing their premedical courses of study. A well-balanced program, rather than a specific field, is the criterion by which an applicant is judged. It is not advisable to take courses that appear to cover subject matter in the medical program.

While well-qualified candidates are eligible for admission after completing the minimal 90 semester-hour requirement, the majority of applicants are found to be better prepared for the study of medicine after four years of college work.

Medical Technology

The degree of Bachelor of Science in Medical Technology is offered by Columbian College in collaboration with the Department of Pathology and the University Hospital. Candidates should follow the Science curriculum in the lower division, including specifically Chemistry 11-12 and Microbiology 211 and 212. See pages 80-81 and 104 for a description of the course and a statement of further requirements.

* See footnote on page 70.

IN PREPARATION FOR THE SCHOOL OF EDUCATION:

Education

First two years of the Bachelor of Arts in Education curriculum of the School of Education:

	Semester Hours
English English 1 or 1X, 2.....	6
English 51-52, 71-72, or 91-92.....	6
Foreign Language (French, German, Latin, Russian, or Spanish.) See page 69 for foreign language requirement.....	12
Physical Education See page 68 for statement of require.....	4
Science Three semesters (two in biological science and one in physical science or vice versa) to supplement senior high school courses in those fields and cho- sen from Biology 1-2; Chemistry 3-4, 11-12; Ge- ology 1-2 or 1 and 12; Physics 1-2 or former 11 and 12. (A student offering for admission two or more acceptable senior high school units in the above areas of science may be exempted from one semes- ter of this requirement.).....	9 12
Mathematics Two semesters to supplement senior high school courses, chosen from Mathematics 3, 6, 9, 10.....	6
Social Studies History 71-72; Political Science 9-10.....	6
Economics 1-2; Geography 51-52; History 39-40, 71-72; Political Science 9-10; Religion 59-60; Anthropology 1 and Sociology 2. (A student offer- ing for admission two or more acceptable senior high school units in social studies may be ex- empted from this requirement.).....	6
Speech Speech 1 (or 11, if the Department so advises).....	3
Psychology Psychology 1, 22.....	6
Electives may be selected in lieu of the various exemptions	
Total.....	64 67

Physical Education for Men

First two years of the Bachelor of Science in Physical Education curriculum of the School of Education:

English English 1 or 1X, 2.....	6
Science Biology 1-2 (Freshman year).....	8
Chemistry 3-4 (Sophomore year).....	8
Social Studies History 71-72; Political Science 9-10.....	6
Anthropology 1 and Sociology 2.....	6
Major Prerequisites Physical Education 41, 43-44, 47; Speech 1 or 11 (Freshman year).....	10
Physical Education 45-46, 49, 50; Psychology 1, 22 (Sophomore year).....	16
Elective	4
Total.....	64

Physical Education for Women

First two years of the Bachelor of Science in Physical Education curriculum of the School of Education:

	Semester Hours
English English 1 or 1X, 2.....	6
Science English 51-52, 71-72, or 91-92.....	6
..... Biology 1-2	8
..... Chemistry 3-4	8
Social Studies History 39-40, 71-72; Political Science 9-10; or An- thropology 1 and Sociology 2.....	6
Major Prerequisites Physical Education 43-44.....	4-6
..... Physical Education 49, 50.....	6
..... Physical Education 51-52.....	4-6
..... Psychology 1, 22.....	6
Academic Electives	6-10
Total.....	64

IN PREPARATION FOR THE SCHOOL OF GOVERNMENT, BUSINESS, AND INTERNATIONAL AFFAIRS:

Government and Business

ACCOUNTING AND BUSINESS ADMINISTRATION

First two years of the Bachelor of Business Administration curricula in Account-
ing and in Business Administration of the School of Government, Business, and In-
ternational Affairs:

	Semester Hours
Accounting Accounting 1-2	6
English Composition English 1 or 1X, 2.....	6
*Language or Literature..... English 51-52, 71-72, 91-92; French 3-4 or 51-52; German 3-4 or 51-52; Slavic Languages 3-4, 91- 92 or 93-94; Spanish 3-4 or 51-52.....	6
Mathematics Mathematics 15, 16.....	6
Science Biology 1-2; Chemistry 3-4, 11-12; Geology 1-2 or 1 and 12; or Physics 1-2 or former 11 and 12.....	6-8
Social Studies Economics 1-2	6
..... Political Science 9-10.....	3
..... Psychology 1	3
..... Anthropology 1, Sociology 2, or Psychology 8.....	3
Statistics Statistics 51	4
Physical Education See page 68 for statement of requirement.....	4
Elective† Speech is recommended, students interested in For- eign Commerce include Geography 52).....	7-9
Total.....	64

* This requirement is waived for students who offer 4 years of acceptable high school work in a single foreign language.

† Credit is not given for courses elected in Physical Education or Secretarial Studies.

PUBLIC AFFAIRS

First two years of the Bachelor of Arts in Government curriculum in Public Affairs of the School of Government, Business, and International Affairs:

	Semester Hours
English English 1 or 1X, 2.....	6
Foreign Language See page 69 for foreign language requirement.....	12
Mathematics or Science..... Biology 1-2; Chemistry 3-4; Geology 1-2; Mathematics 3, 6; Physics 1-2 or former 11, 12; or Statistics 51, 52.....	6-8
Physical Education See page 68 for statement of requirement.....	4
Social Studies Economics 1-2; History 39-40, 71-72; Political Science 9-10.....	24
Elective* (To satisfy minimum required credits).....	10-12
Total.....	64

BUSINESS AND ECONOMIC STATISTICS

First two years of the Bachelor of Business Administration curriculum in Business and Economic Statistics of the School of Government, Business, and International Affairs:

	Semester Hour
Accounting Accounting 1-2	6
Economics Economics 1-2	6
English English 1 or 1X, 2.....	6
Foreign Language See page 69 for foreign language requirement.....	12
Mathematics Mathematics 21, 22, 23.....	9
Physical Education See page 68 for statement of requirement.....	4
Political Science Political Science 9-10.....	
or Philosophy Philosophy 51-52	6
Statistics Statistics 51 or 91, 52.....	6
Elective*	9
Total.....	64

International Affairs

First two years of the Bachelor of Arts in Government curriculum in International Affairs of the School of Government, Business, and International Affairs:

	Semester Hours
English Composition English 1 or 1X, 2.....	6
English Literature English 51-52, 71-72.....	6
Foreign Language See page 69 for foreign language requirement.....	12
Geography Geography 52	3
Mathematics or Science..... Biology 1-2; Chemistry 3-4; Geology 1-2; Mathematics 3, 6; Physics 1-2 or former 11, 12; or Statistics 51, 52.....	6-8
Physical Education See page 68 for statement of requirement.....	4
Social Studies Economics 1-2; History 40, 71-72.....	15
Elective* Political Science 9-10.....	4-6
..... (To satisfy minimum required credits).....	
Total.....	64

* Credit is not given for courses elected in Physical Education or Secretarial Studies.
 † This requirement may be satisfied by 6 hours of Mathematics, by 3 hours of Mathematics plus Statistics 51, or by 6 to 8 hours of science.

TERMINAL CURRICULA

In addition to the above curricula, the lower division offers the following two-year terminal curricula.

The curriculum in Accounting leads to the degree of Associate in Arts. The curriculum in Physical Sciences leads to the degree of Associate in Science. The last 15 semester hours must be spent in residence in Columbian College.

Accounting

The required work may be completed in two years on a full-time basis or in three years on a part-time basis, with the approval of the adviser.

	Semester Hours
Accounting Accounting 1-2, 101, 111, 121-22, 161, 171, 181, 191, 193	33
Business Administration..... Business Administration 131, 161, 162.....	9
Economics Economics 1-2	6
English English I or 1X, 2.....	6
Physical Education See page 68 for statement of requirement.....	4
Elective To be selected with the approval of the adviser.....	6
Total.....	64

Physical Sciences

This curriculum is designed for part-time students who do not wish to extend their collegiate education beyond 64 semester hours of work. All other students interested in the study of physical science should follow the Columbian College Science curriculum.

	Semester Hours
Applied Science Applied Science 3.....	3
Chemistry Chemistry 11, 12, 21.....	12
English English I or 1X, 2, 11.....	9
Mathematics Mathematics 3, 6, 21, 22, 23, 24.....	12-18
Physical Education See page 68 for statement of requirement.....	4
Physics Physics 1-2, 31-32, 51-52.....	16
Elective (Speech 1, Economics 1-2 suggested).....	2-8
Total.....	64

Upper Division

A student working toward a Bachelor's degree in the arts or sciences who has 64 or more acceptable semester hours, whether earned in this University or transferred from another institution, is registered in the upper division of Columbian College. It is assumed that he has met the requirements of the lower division *Arts and Letters* or *Science* curriculum. If he has not, he must begin to make up his deficiencies immediately upon admission and continue to carry courses to this end until all requirements are met.

THE BACHELOR'S DEGREES

Columbian College through its upper division offers programs leading to the degrees of Bachelor of Arts, Bachelor of Science, and Bachelor of Science in Medical Technology.

In cooperation with the School of Medicine a seven-year curriculum leading to the combined degrees of Bachelor of Arts and Doctor of Medicine is offered.

REQUIREMENTS FOR THE DEGREES

RESIDENCE

A minimum of 30 semester hours, including at least 12 hours in the major field, must be completed in residence in the upper division of Columbian College. This requirement applies to students transferring within the University as well as to students transferring from other institutions. Summer work may be counted in residence, but in no case may the period of residence aggregate less than thirty weeks. Unless special permission is granted by the Dean to pursue work elsewhere, the work of the senior or final year must be completed in residence.

For the regulation governing students who are absent from the University for one semester or more, see page 58.

CURRICULUM REQUIREMENTS

The curriculum requirements for the Bachelor's degrees include at least 60 semester hours beyond those of the appropriate lower division curriculum and the satisfactory completion of the major. Each program must be approved by the major adviser and by the Dean.

At least 24 of the last 60 hours counted toward the Bachelor's degree must be taken in subjects* not included in the major field or department. The student should consult his major adviser at each registration concerning his choice of electives.

Except for premedical and medical technology students, not more than 12 hours of professional courses may be included in the undergraduate program. The election of professional courses must be approved by the Dean's Council prior to registration. Ordinarily courses in Physical Education and technical courses in Education will not be approved toward a degree.

A change in degree candidacy (e.g., from Bachelor of Arts to Bachelor of Science) requires the permission of the Dean. The degree requirements effective at the time the change is approved must be met.

Each student must select and file with the Dean a choice of major upon entering the upper division. He may change the major only with the consent of the Dean and of the department or committee concerned, and must meet the requirements for the new major which are in effect at the time the change is approved.

First-group courses may be required as prerequisites to the major, but because of

* Anthropology, Art, Biology, Botany, Chemistry, Classical Languages and Literatures, Economics, English, Geography and Regional Science, Geology, Germanic Languages and Literatures, History, Journalism, Mathematics, Philosophy, Physics, Political Science, Psychology, Religion, Romance Languages and Literatures, Slavic Languages and Literatures, Sociology, Speech, Statistics, Zoology
American Thought and Civilization 101 American Civilization (3), a nondepartmental University-sponsored course, is recommended as a senior-year elective.

their introductory character they may not be counted as part of such programs. (See "Explanation of Course Numbers.")

Students transferring from other institutions or from other schools, colleges, or divisions in this University with major requirements wholly or substantially met must complete satisfactorily at least 12 semester hours of approved work in the major field in the upper division of Columbian College. This work will count as part of the minimum residence requirement.

Examination for Waiving Curriculum Requirements.—A required course may be waived and admission to an advanced course granted by the satisfactory passing of a waiver examination prescribed by the department concerned. Passing this examination does not entitle the student to any hours of credit toward the degree. Written request to take the examination should be made to the Dean and the required fee paid at the Office of the Cashier before taking the examination.

INDEPENDENT STUDY PLAN

A junior or senior of demonstrated capacity, with special interest in the subject matter of a course, may be permitted to undertake independent study under the personal direction of an instructor, in accordance with the rules of the department or departments concerned. Credit under this plan is limited to the specific course-credits as designated in the list of courses of instruction.

GRADUATE RECORD EXAMINATIONS

During the final semester of the senior year students in Columbian College are required to take the following Graduate Record Examinations: the Aptitude Test, which provides a measure of general scholastic ability at the graduate level; and Area Tests (achievement), which measure breadth of knowledge and understanding in three broad areas of the liberal arts: Natural Science, Social Science, and the Humanities.

The examinations are conducted by the University twice a year: the Fall Testing Session for seniors graduating in February, and the Spring Session for those graduating in June. Students expecting to complete degree requirements during the summer sessions should take the examination in the Spring Session. Dates of the examinations are announced in the *Schedule of Classes*.

Each senior must register in the Office of the Dean for the Graduate Record Examination when he registers for his final regular semester of study (excluding summer sessions). A \$10 examination fee is payable at the time of registration.

Students will receive individual reports of test scores and may avail themselves of the regular transcript services of the Educational Testing Service. By special permission seniors who expect to graduate in June may take the Graduate Record Examination at the previous Fall Testing Session, so as to have transcripts available early in the year when applying for admission to graduate schools.

Bachelor of Arts

The work of the junior and senior years, including a major in one of the following fields, must be approved by the major adviser and by the Dean.

American Thought and
Civilization
Anthropology

Art:
Art History and Theory
Drawing and Painting

Sculpture	Music:
Advertising Design	Music History and Literature
Ceramics	Music Theory
Biology	Applied Music
Botany	Philosophy
Chemistry	Physics
Economics	Political Science
English Literature	Psychology
French Language and Literature	Regional Science
Geography	Religion
Geology	Russian
Germanic Languages and Literatures	Sociology
History	Spanish-American Literature
Journalism	Spanish Language and Literature
Latin	Speech:
Latin American Civilization	Speech
Mathematical Statistics	Dramatic Art
Mathematics	Urban and Regional Development
	Zoology

Combined Degrees of Bachelor of Arts and Doctor of Medicine.—A candidate for the combined degrees of Bachelor of Arts and Doctor of Medicine must: (1) complete the Medical School entrance requirements; (2) fulfill the Arts and Letters curriculum of the lower division requirements (see page 70); (3) accumulate 94 semester hours in the liberal arts, including a minimum of 30 in the upper division of Columbian College; (4) obtain the approval of the Dean of Columbian College at the time of entering the School of Medicine; (5) obtain the recommendation of the Dean of the School of Medicine at the completion of all prescribed courses in the first year of the School of Medicine, at which time the degree of Bachelor of Arts will be conferred (professional work taken at another institution will not satisfy the major requirement for the combined degrees); (6) maintain throughout the entire course the scholarship level required for graduation.

Bachelor of Science

The work of the junior and senior years, including a major in one of the following sciences, must be approved by the major department or division and by the Dean.

Biological Sciences

Biology
Botany
Zoology

Physical Sciences

Chemistry
Geology
Mathematical Statistics
Mathematics
Physics

The Undergraduate Major

There are two types of undergraduate majors: the field-of-study major and the departmental major.

THE FIELD-OF-STUDY MAJOR

Each Field-of-Study Major covers a carefully worked out field of coordinated study and is under the supervision of the appropriate department and the Columbian College Committee on Studies.

The *Field-of-Study Major* requires no specific number of semester hours, no specific program of courses, and no specific quality-point index for the major, although the student is required to meet the over-all general requirements for the degree (at least 124 semester hours with a quality-point index of at least 2.00). Ability to pass the Major Examination is assumed to be a convincing demonstration that the student possesses the breadth, depth, and quality of knowledge of his major usually defined in terms of semester hours, courses, grades, and a better-than-average quality-point index. A pamphlet on each field is obtainable either from the appropriate adviser or from the Office of the Dean. The prospective student should place himself under the direction of the appropriate adviser immediately upon completing lower division work and beginning his junior year.

The Field-of-Study Major places special emphasis on the intellectual development of the individual student. Programs in the same major may vary, depending upon the individual student's background, previous study, reading habits, and aptitudes. The student is expected to consult his adviser frequently, and the special proseminar offered in the field gives him further opportunity for individual advice and direction in pursuing a program especially adapted to his needs and abilities. A close student-adviser relationship is essential for the student's success under the Field-of-Study Major plan.

The following Field-of-Study Majors are offered: American Thought and Civilization, English Literature, French Language and Literature, History, Latin American Civilization, Mathematical Statistics, Philosophy, Spanish-American Literature, Spanish Language and Literature, Zoology.

The major in American Thought and Civilization and in Latin American Civilization involve studies in two areas, those of Languages and Literatures and of Social Sciences. The other Field-of-Study Majors, with the exception of the major in Spanish-American Literature, replace departmental majors in their respective fields. A candidate for a Bachelor's degree with a major in English Literature, French Language and Literature, History, Philosophy, Spanish-American Literature, Spanish Language and Literature, or Zoology must elect a Field-of-Study Major.

PROSEMINAR IN THE MAJOR

A proseminar is offered in each field to help the student in his reading, study, and laboratory exercises acquire a coordinated knowledge of his field. It is a presentation of the content and methods of the major field as a whole through the organization and coordination of the knowledge obtained in the various formal courses in the major subject and of material not usually included in such courses. This course is not required. Six semester hours, but no qualitative grade, may be assigned. When registered in this course, the student has the privilege of visiting, subject to the ap-

proval of the instructor, any other appropriate course offered in the College. (Regular attendance in a course, either for credit or as an auditor, requires registration and payment of tuition.) Proseminars are open only to the student who has been accepted as a candidate under that specific major.

THE MAJOR EXAMINATION

The Major Examination will normally be taken at the close of the senior year; a student on a limited schedule may take it no earlier than one calendar year before graduation. A student who fails to pass a Major Examination may, at the discretion of the Committee on Studies, be reexamined at a later regular major-examination period. The Committee on Studies has general supervision of the preparation, reading, and grading of Major Examinations. Major Examinations are held each semester on dates fixed by the department or departments concerned, but in no case later than January 15 for the fall semester, May 15 for the spring semester, and August 26 for the summer session.

DEPARTMENTAL MAJORS

Departmental Majors, unlike *Field-of-Study Majors*, are defined in terms of credit hours, required courses, and the attainment of a quality-point index of at least 2.50 in all second-group courses taken in the major field. The minimum specific requirements for Departmental Majors are listed below the staff of instruction of the department concerned. The Chairman of the Department, or designated departmental adviser, should be consulted at registration concerning the student's program of courses; and the entire program, including electives, must be approved by the Department. The student is also expected to consult the Chairman or adviser in all matters affecting his program of studies, such as changes, substitutions, or withdrawals, and especially concerning his progress in his courses. A close student-adviser relationship is cultivated.

Departmental Majors are offered in the following: Anthropology; Art (1) Art History and Theory, (2) Drawing and Painting, (3) Sculpture, (4) Advertising Design, and (5) Ceramics; Biology; Botany; Chemistry; Economics; Geography; Geology; Germanic Languages and Literatures; Journalism; Latin; Mathematical Statistics; Mathematics; Music (1) Music History and Literature, (2) Music Theory, and (3) Applied Music; Physics; Political Science; Psychology; Regional Science; Religion; Russian; Sociology; Speech (Speech or Dramatic Art); Urban and Regional Development.

Bachelor of Science in Medical Technology

In cooperation with the University Hospital and the Department of Pathology of the School of Medicine, Columbian College offers work leading to the degree of Bachelor of Science in Medical Technology, the fourth year of which (12 calendar months) is spent at the University Hospital.

A candidate for this degree must complete the Science curriculum in the lower division of Columbian College, see pages 70-71; fulfill the Columbian College requirements for degree, including 30 semester hours of residence in the upper division (junior year); and complete the 12-month Medical Technology Course in the Uni-

versity Hospital (senior year), which constitutes the major and prepares students for the national certifying examination given by the Registry of Medical Technologists.

Each candidate must make application to the Medical Technology School at the University Hospital early in the junior year. While admission to the Columbian College degree program does not assure acceptance into the Medical Technology School, The George Washington University students are given preference.

A limited number of scholarships are provided by the University Hospital for students enrolled in the fourth year of the degree program (see page 44).

For further information concerning the Medical Technology School, call FE 3-9000, Ext. 696.

The Graduate Division

The graduate division offers programs leading to the degrees of Master of Arts, Master of Science, and Master of Fine Arts.

DEFINITION OF THE MASTER'S WORK

The study leading to a Master's degree is a comprehensive survey of an area of knowledge, usually in the student's undergraduate field, with emphasis on scholarly method.

The student must satisfy certain minimum requirements as to preparation, residence, ability to read an approved modern foreign (European) language, and courses taken; but these requirements, while essential, are regarded primarily as qualifying measures. The student's knowledge of his field, as demonstrated by his thesis and by the results of his Master's examination (together with such other examination involving special skills or techniques as the department or the Committee on Studies may require), is the basis upon which the Master's degree is conferred.

Master of Arts

Graduate work leading to the degree of Master of Arts is offered in the following fields:

American Literary and Cultural History	Mathematical Statistics
Anthropology	Mathematics
Art History and Criticism	Microbiology
Biochemistry	Pharmacology
Biology	Philosophy
Botany	Physics
Chemistry	Physiology
Economics	Political Science
English and American Literature	Psychology
English Literature	Religion
French Language and Literature	Religious Education
Geography	Sociology
Geology	Spanish-American Literature
Germanic Languages and Literatures	Spanish Language and Literature
History	Speech Rehabilitation
Latin American Civilization	Urban and Regional Development
Linguistics	Zoology

Special programs involving coordinated work in two or more departments may be arranged with the approval of the departments concerned and the Columbian College Committee on Studies.

Master of Science

Graduate work leading to the degree of Master of Science is offered in the following fields:

Anatomy
Biochemistry
Biology
Botany
Chemistry
Geochemistry
Geology
Mathematical Statistics

Mathematics
Microbiology
Pharmacology
Physics
Physiology
Psychology
Zoology

Special programs involving coordinated work in two or more departments may be arranged with the approval of the departments concerned and the Columbian College Committee on Studies.

Master of Fine Arts

Graduate work is offered leading to the degree of Master of Fine Arts in the fields of painting, sculpture, or ceramics (see the Department of Art) and in the field of Dramatic Art (see the Department of Speech).

REQUIREMENTS FOR THE DEGREES

RESIDENCE

Normally, an academic year of residence in the graduate division of Columbian College is required, i.e., completion of a minimum of 30 semester hours of work including the thesis, which is counted as the equivalent of 6 semester hours of course work. Summer work may be counted in residence, but in no case may the period of residence aggregate less than twenty-seven weeks. Not more than 12 semester hours (which must be approved in advance by the Dean) may be taken in another school or division of this University, and such work may not be counted toward both a degree in that school or division and the Master's degree in Columbian College. *No part of the minimum requirement may be taken elsewhere.* All work for the degree of Master of Arts, Master of Science, or Master of Fine Arts must be completed within a maximum of three years, unless the Dean's Council considers the circumstances so unusual as to justify an extension of time.

SCHOLARSHIP

Grades are indicated as *E* (excellent), *S* (satisfactory), *U* (unsatisfactory), *I* (incomplete). *CR* indicates credit.

The grade of *E* must be attained in at least 6 semester hours of the course requirements for the degree.

A student whose scholarship is unsatisfactory may be suspended by the Dean upon recommendation of the department under which the student is working. A Master's

candidate who accumulates 9 hours or more of *U* (including grades of *C* or lower in prerequisite courses) will be automatically suspended.

The symbol *I* (incomplete) indicates that a satisfactory explanation has been given to the instructor for the student's failure to complete the required work of the course. An "incomplete" can not be made up after the lapse of one calendar year except by written permission of the Dean's Council. An incomplete which is not removed within one calendar year is automatically changed to an *F*. An incomplete cannot be removed by re-registering for the course.

PROGRAM OF STUDIES

The student's program of studies must be outlined in detail at the beginning of his work, in triplicate, on forms available at the Office of the Dean. Each program is subject to the approval of the department and the appropriate member of the Committee on Studies. The program may be revised, but any change necessitates a repetition of the procedures just described.

The candidate for the Master's degree ordinarily may specialize exclusively in the field of his choice. Any student, however, whose undergraduate training does not include at least one full year of work in each of the following areas of study: (1) mathematics or science (with or without laboratory), (2) social science, and (3) the humanities (literature, philosophy, art, music, or religion), must make up this deficiency in his general education before being admitted to candidacy for the Master of Arts degree. This last provision does not apply to candidates for the Master of Science degree.

Courses numbered from 1 to 100 may not be credited toward the Master's degrees, but may in certain instances be required as a basis for advanced work. At least 6 semester hours of the course work required for the degree must be taken in courses numbered over 200. Courses numbered between 100 and 200 may be credited toward the degree, if completion of additional work has been certified by the appropriate officer of instruction. (See "Explanation of Course Numbers".)

A student who expects to continue his studies for the degree of Doctor of Philosophy after receiving the Master's degree is strongly advised to plan his program from the beginning so that work for the lower degree will constitute the initial stage of the doctoral discipline and, upon completion, will admit him to full status in the Graduate Council.

FOREIGN LANGUAGE REQUIREMENT

Before being admitted to candidacy the student must show that he has a reading knowledge (certified by the appropriate foreign-language department) of at least one foreign language, selected by the department or committee under which he is studying. A student whose field is a modern foreign language or literature may not offer that language in satisfaction of the reading-knowledge requirement. Any candidate who chooses to meet the language requirement in French, German, Latin, Russian, or Spanish and has not passed the language examination by the end of 15 attempted semester hours must register for French 49, German 47 or 49, Latin 49 or 50, Russian 47, or Spanish 49, as part of his next registration. The Master's reading examination is given at the beginning and end of each of these courses and, if the course is offered in the summer, at the end of the term. No student will be permitted to take the examination after three unsuccessful attempts. Those enrolled in French 49, German 49, or Spanish 49 who pass the first examination are excused from the course and will receive a refund of tuition. Students who expect to take a reading exami-

nation in any approved language other than French, Spanish, or German should notify the Dean at the time of registration.

Students are reminded of the necessity for early satisfaction of this requirement, normally not later than the end of the first semester of registration for the degree.

ADMISSION TO CANDIDACY

A student must be admitted to candidacy before he begins the last half of his work for the Master's degree, i.e., not later than the completion of 15 semester hours of degree courses. Application for admission to candidacy is made on a form obtained at the Office of the Dean, and must be approved by the appropriate representative of the department or committee and by the Dean. If a prospective candidate, in his previous academic work, has not substantially satisfied the prerequisites for the Master's degree, including the undergraduate major as defined by the appropriate department or committee, he will not be admitted to candidacy until such deficiency has been made up. He may make up his deficiencies by electing appropriate courses in addition to those counted toward his degree.

THE THESIS

The thesis may be of a research, expository, critical, or creative type. The main purpose of a Master's thesis is to demonstrate the student's ability to make independent use of the information and training acquired through his other disciplines, and to furnish objective evidence of his constructive powers in his chosen field. Registration for the thesis must be no later than the beginning of the final year of preparation, unless the professor in charge of the thesis permits registration at the beginning of the final semester. The choice of the thesis subject must be approved by the professor in charge of the student's field and filed in the Office of the Dean by the date announced in the University calendar. Registration for the thesis is ordinarily made on the basis of 3 hours for each of two successive semesters. In exceptional cases, and with the approval of the professor in charge of the thesis, the student may register for the entire 6 hours during a single semester. The thesis in its final form must be presented to the Dean, no later than the date announced in the University calendar. Printed copies of detailed regulations regarding the form and reproduction of the thesis are available in the Office of the Dean.

Payment of tuition for the thesis entitles the candidate, during the academic year of registration, to the advice and direction of the member of the faculty under whom the thesis is to be written. In case a thesis is unfinished an additional successive academic year may be granted without further tuition payment. The student must, however, be registered in residence during this period. If the preparation of the thesis extends beyond the two-year period the student must register for it again, and pay tuition on the same basis as for a repeated course.

THE MASTER'S EXAMINATION

In addition to such other examinations as may be required, the candidate must pass a general written examination on the major subject. Examinations are held on dates fixed by the department or committee, but in no case later than January 15 for the fall semester, May 15 for the spring semester, and August 26 for the summer session. A candidate who fails to pass the Master's Examination may, in exceptional circumstances and with the specific approval of the Committee on Studies, repeat the examination, but only after the lapse of one semester. If he fails a second time, no further opportunity to take the examination will be permitted.

The Graduate Council

A. E. Burns, *Dean*

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* The Members of the Council and Consultants in Research for the academic year 1963-64.

† On sabbatical leave spring semester 1963-64.

‡ On leave of absence spring semester 1963-64.

§ On leave of absence 1963-64.

nedy, Milton Kern, Morton Kupperman, B. N. LaDu, Jr., H. M. Lenhoff, L. L. Marton, Margaret Mercer, Walter Mertz, Winfred Overholser, Kittie Parker, J. J. Polak, M. I. Protzman, Marco Rabinovitz, W. D. Rasmussen, E. M. Renkin, J. H. Roe, S. J. Sarnoff, Irving Schneider, L. P. Schultz, D. B. Scott, J. E. Seegmiller, W. A. Shropshire, Jr., R. S. Sigafos, L. B. Smith, DeWitt Stetten, Jr., Robert Stewart, T. D. Stewart, M. J. Surgalla, Sidney Udenfriend, E. J. Unberger, Ludwig von Sallmann, F. M. Weida, Emilio Weiss, W. R. West, C. G. Wright, R. A. Young

INTRODUCTION

The Graduate Council offers a program of advanced study and research leading only to the degree of Doctor of Philosophy. It was established in 1930 to replace the Graduate School which had formerly administered work for the Master's as well as the Doctor's degrees. The Graduate Council provides a doctoral discipline which moves freely across administrative lines dividing departments of instruction or fields of study. It gives personal supervision to a limited number of students, each of whom has his own consultative committee, examinations, and research direction.

ADMISSION PROCEDURE

For admission to doctoral work the student must possess adequate preparation for advanced study, together with acceptable personal qualities and a capacity for creative scholarship. Adequate preparation presupposes a satisfactory Bachelor's degree in the same general field as that proposed for doctoral study. Students beginning the first year of graduate study who plan to work towards the degree of Doctor of Philosophy may be given provisional status in the Graduate Council. However, if these students wish, and if the Dean of the Graduate Council so advises, they may register for the Master's degree in the liberal arts college (Columbian College of Arts and Sciences) or in the School of Government, Business, and International Affairs during the first year and apply for transfer to full status in the Council upon completion of 24 semester hours of approved graduate work.

Application forms may be obtained from the Office of the Dean of the Graduate Council. The form must be filled out completely and returned with the application fee of \$15, together with a recent photograph, signed by the applicant. At the time of filing the application, the student should request that transcripts of all previous academic training be sent to the Office of the Dean, together with letters of recommendation. Each application, with transcripts and letters, is examined by a committee which, if the applicant is accepted, constitutes his Consultative Committee. This Committee supervises all aspects of the student's program and work leading to the General Examination.

REGISTRATION PROCEDURE

An applicant, upon receiving a letter of admission from the Graduate Council, is eligible to register at the beginning of the next semester. Doctoral students come

directly to the Graduate Council Office to begin their registration process each semester.

THE PLAN OF WORK

The discipline for the degree is divided into three stages. (1) The first year of graduate study constitutes the initial stage, either in the Graduate Council on provisional status, or in Columbian College of Arts and Sciences or the School of Government, Business, and International Affairs enrolled as a Master's candidate intending to gain full status in the Council.* (2) Full status in the Council follows completion of the first year of graduate study and culminates in the General Examination. (3) The final stage is given to research and investigation of a particular project in a special field, the presentation of the findings in a written dissertation, and the Final Examination.

LANGUAGE REQUIREMENT

French and German are the normally required languages. However, Spanish and Russian are acceptable, and other languages important to the student's research interest may be approved by the Consultative Committee.

The language requirement may be satisfied by passing examinations or by satisfactorily completing the appropriate reading courses for nonmajor students (French 49, German 49, Russian 49, Spanish 49).

If the student elects to meet the requirement by taking examinations, the Office of the Dean will make the necessary arrangements whenever the student feels prepared. The examination in one language must be passed by the beginning of the second semester following admission; the examination in the second language must be passed well before the completion of work for the General Examination.

THE FIRST YEAR OF STUDY

A student who enters the Graduate Council on provisional status to undertake the first year of graduate study has his program planned by a Consultative Committee. If the first year of work is taken in Columbian College of Arts and Sciences or the School of Government, Business, and International Affairs preparatory to gaining full status, Graduate Council advisers aid in planning the Master's program to fit the work into the doctoral program of the student. Upon satisfactory completion of the first year, the student is eligible to apply for full status. Students who have completed a year of satisfactory graduate work at other universities are also eligible to apply directly for full status in the Graduate Council.

STUDY FOR THE GENERAL EXAMINATION

At the beginning of the student's full status, the Consultative Committee is assigned to direct his work in an integrated group of fields of learning, usually five or six in number, deemed necessary to insure his breadth of knowledge, as well as to support the dissertation project in his central field. Members of the Consultative Committee advise the student concerning the scope and content of these supporting fields and assist him in preparation for his examination in them.

* Students on a part-time basis will normally complete a year of graduate study in two years.

This advanced study in full status does not entail the taking of a second full year of graduate courses and seminars. Additional course work may not be necessary in some cases; in any event, the Consultative Committee determines whether such additional course work is needed, and if so, how much. In this stage of the work the main emphasis in preparation is on conferences with committee members and independent study. Performance in the General Examination is the test of the student's ability to enter upon the final stage of his doctoral discipline.

The examination is a series of written tests usually extending over a period of two weeks. The major portion of a day is given to each part of the examination covering one of the fields of study on the student's program. If the results of the examination are satisfactory the student is admitted as a doctoral candidate, to pursue his specialized study and research under the supervision of a member of the Council.

RESEARCH, THE DISSERTATION, AND THE FINAL EXAMINATION

After the student has been admitted as a doctoral candidate and his research program has been arranged, he is responsible to the member of the Council who directs his research project. The Consultative Committee, in keeping with tradition, goes out of existence with the successful completion of the General Examination. The Committee, however, can make recommendations either to the student or the Research Director, for the period following the General Examination—but cannot impose these as advance requirements. In special instances an advisory committee (which may or may not correspond in personnel with the previous Consultative Committee) may be convened to consider major questions concerning the program of a given student in the period after the General Examination. Generally, such a committee would be named by the Dean at the request of the Research Director. The responsibility for the program between examinations rests with the Director of Research, with the understanding that whenever a Director and Co-director arrangement obtains, that member on the permanent staff of the University shall have final responsibility on matters of policy and program. The Director of Research and the advisory committee may require further course work, where circumstances warrant such action.

The candidate may enjoy unrestricted use of all the academic facilities of the University. When necessary, the Graduate Council makes provision for sending the candidate to some other institution, library, or laboratory for special study in connection with his doctoral investigation.

The doctoral dissertation is required of all candidates as evidence of ability to perform scholarly research and to interpret its results. The student's dissertation subject and plan must be approved by the Director and two members of the General Examination Committee, after the General Examination is passed and before his actual research is begun.

No later than the date specified in the University calendar the candidate must submit to the Dean three complete copies of the dissertation (including a summary which is to be inserted as an appendix) together with a fourth copy of the summary and a copy of the abstract for inclusion in the announcement of the examination. Printed copies of detailed regulations regarding the form and reproduction of the dissertation and its summary are available in the Office of the Dean. The summaries of accepted dissertations are printed in a numbered issue of the University

BULLETIN. The successful candidate for the doctorate is required, before receiving his degree, to pay a fee to cover the expense of printing the summary of his dissertation. Accepted dissertations, with accompanying drawings, become the property of the University and are deposited in the University Library, where the duplicate copies are bound and made available for circulation. Permission to publish or adapt material in them must be secured from the Dean.

When the completed dissertation has been approved by the Director of Research and by two other members of the Council, and submitted to the Office of the Dean, the candidate is presented for his final examination. This examination is oral and open to the public. The committee of examiners includes not only members of the Council competent in the research field or in closely related subjects, but also at least two qualified experts from other research institutions brought to the University to participate in the examination. If the candidate satisfies the examining committee concerning the high quality and originality of his contribution to knowledge as well as his mastery of the scholarship and research techniques of his field, the Council recommends him for the degree of Doctor of Philosophy.

FIELDS OF RESEARCH

The following fields of research have been authorized by the Graduate Council as those in which doctoral investigations and dissertations may be undertaken. The supporting fields of study required of all candidates for the degree of Doctor of Philosophy are specified for each individual student by his Consultative Committee before admission to study under the Council.

This list of fields is subject to such changes as the educational resources of the University may direct. The prospective student may address preliminary inquiries concerning his research interests to the member of the Council who is in charge of the field, or to the Dean of the Graduate Council.

LITERATURES AND LANGUAGES

American

- (1) Fiction; (2) Literary Nationalism
Social Themes in Literature

Coberly
Walker

English

- (1) Sixteenth Century Drama; (2) Seventeenth Century Drama
Seventeenth Century Literature
(1) Eighteenth Century Literature; (2) History of English Drama
Twentieth Century Literature

Reeding
Highfill
Linton

Germanic

- (1) German Classicism; (2) German Romanticism
(1) German Realism; (2) Twentieth Century German Literature
Linguistic Analysis
(1) Middle High German Language and Literature; (2) Early New High
German Language and Literature
Old High German Language and Literature
Old Norse Language and Literature

Thoenelt
Osterle
Allee, King

Legner
King
Allee

Romance

French Literature since 1880	Clubb
(1) Eighteenth Century French Literature; (2) Twentieth Century French Literature	
(1) Middle French Literature; (2) Old French Literature; (3) Romance Philology	Vigneras
(1) Nineteenth Century French Literature; (2) Symbolism in Poetry of the Modern Period	Frey
Seventeenth Century French Literature	Protzman
(1) Eighteenth Century Spanish Literature; (2) Nineteenth Century Spanish Literature	Mazzeo
(1) Linguistics; (2) Spanish-American Literature; (3) Spanish Literature	McSpadden
Modern Spanish Literature	Alonso
(1) Nineteenth Century Spanish Literature; (2) Twentieth Century Spanish Literature	Supervia
(1) Spanish-American Literature; (2) Modern Spanish Literature	Robb

SOCIAL SCIENCES**Economics**

Economic History	Sharkey
Economic Policy	Watson
Economic Theory	Stewart, Watson, Skinner
History of Economic Thought	A. Burns
International Economics	Schmidt
International Finance	Polak, Young, de Vries
Methodology of Economics	Skinner
Money and Banking	Aschheim
National Income	Kendrick, Colm
Public Finance	Colm
Soviet Economics	Kennedy
Transportation	

Geography

City Planning	Davis, LeBlanc, Westermann, Woodruff
Cultural Geography	Campbell, Mosé
Regional Industrial Development	Davis, Westermann
Regional Planning	Campbell, Woodruff
Regional Science	Campbell, Westermann, Davis

History

European: Diplomatic since 1815	R. Davison
European: Nationalism	Kayser
European: Russian and Soviet	Thompson
History of Land Legislation	Rasmussen
History of Religion in the United States	Davis
Latin American	R. Davison
The Modern Near East	Merriman
United States: Diplomatic	Haskett
United States: Political	Gray
United States: (1) Social; (2) Economic	

International Relations

The program in International Relations includes work under the departments of Economics, History, and Political Science

London

Political Science

Comparative Government and Political Theory	Kraus
International Law: (1) War and Neutrality; (2) Arbitration	Brewer
International Politics	Nimer
International Politics and Organization	
International Relations	Hilsman
International Relations, especially American Foreign Policy	Haviland
(1) The Political Process; (2) Political Controls Over Administrative Agencies	LeBlanc
United States: (1) The Legislative Process; (2) Governmental Organization and Administration	West

Psychology

Clinical	Hunt, Mercer, Nolan, Phillips, Levy
Comparative	Caldwell
Experimental	Hill, Walk, Finan
Personnel Psychology	Mosél
Psychological Measurements	Hunt
Social Psychology	Schlesinger, Tuthill

MATHEMATICAL AND PHYSICAL SCIENCES**Chemistry**

Analytical	Schmidt
Chemistry of Natural Products	Sentz
Geochemistry	Nacser, Christ
Inorganic	Nacser, Perros, White
Organic	Wrenn
Physical: Kinetics and Electrochemistry	R. E. Wood
Physical-Organic: Reaction Mechanisms	Sager
Physical: Solubilities	Van Evera

Geology

Geochemistry	Christ, Nacser, Fleischer
Geomorphology	Teleki
Paleontology	Kauffman
Stratigraphy	Teleki

Mathematics

Algebra: Finite Groups	Johnston
Algebra: Matrix Theory	Wiegmann
Analysis: Functional Analysis	Liverman
Analysis: Infinite Series	Mears
Mathematical Logic	Nelson

Physics

Atmospheric Physics	Clark
Behavior of Electrons in Solids	Hobbs
Biophysics; Theoretical: (1) Quantum Mechanics; (2) Molecular Physics; (3) Relativity	Jehle
Electron Optics	Marton
Experimental Biophysics	Yeandle
(1) Experimental Nuclear Physics; (2) Radioactivity	
Low Energy Nuclear Physics	Gove
Positron Annihilation in Condensed Media	Zuchelli
Theoretical	Bergmann
Theoretical: Aerodynamics	Frenkiel

Statistics

Biometrics and Design of Experiments
Information Theory
Multivariate Analysis
Sampling and Operations Analysis
Statistical Inference

Greenhouse
Kullback
Geisser
Bright
Kupperman

MEDICAL SCIENCES

Anatomy

Embryology
Gross Anatomy
Histology
Neuro-ophthalmology
Physical Anthropology

Allan
Telford
Telford, Johnson
von Sallmann
T. Stewart

Biochemistry

Amino Acid Metabolism
Animal Nutrition
Ascorbic Acid Metabolism
Biochemical Detoxication
Biochemistry of Cancer
Carbohydrate Metabolism
(1) Carbohydrate Metabolism; (2) Nutrition (emphasis on vitamins);
(3) Pathological Chemistry
(1) Chemistry and Metabolism of Carbohydrates; (2) Biochemistry of
Tissue Culture
Chemistry and Metabolism of Lipids
Chemistry and Metabolism of Proteins
Complex Lipids
Intermediary Metabolism
Lipids
Metabolic Relationships of Insulin
Protein Biosynthesis
Protein Metabolism
Tissue Respiration

La Du, Udenfriend
Briggs
J. Burns
Brodie
Greenfield
Stetten

Roe

Bailey
Vahouny
Carroll
Brady
Mertz, Seegmiller
Treadwell
Grant
Lenhoff
Rabinovitz, Kern
Burk

Microbiology

Bacterial Physiology
Bacterial Physiology and Nutrition
Determinative Bacteriology
Immunology
(1) Immunochemistry; (2) Microbial Physiology
(1) Intestinal Microbiology; (2) Immunology: Antigenic Analysis
Medical Parasitology
(1) Mycology; (2) Parasitology
Virology

R. C. Wood
Altenbern
Hugh
Surgalla, Wright, Parlett
Affronti
Griffin
Jacobs
O'Hern
Robbins, Brown, Weiss

Pathology

Comparative Pathology

Peery

Pharmacology

Chemotherapy
Drug Metabolism
Neurohormones
Pharmacodynamics

Goldin, Mandel, Hahn
Axelrod, Cohn, C. Davison, Gillette, Mazel, Mandel
Udenfriend
E. Tidball

Physiology

Cardiovascular Physiology
Cellular Physiology
Endocrinology

Leese, Sarnoff
Duryec, Hoffman
Hertz, Alpert, Umberger

Gastrointestinal Physiology
 Membrane Physiology
 Neurophysiology
 Respiratory Physiology

C. Tidball, Louckes
 Renkin, C. Tidball, Alving
 Leese, Alving
 C. Tidball

Psychiatry

Problems of Treatment (M.D. degree required for admission)

Overholser

BIOLOGICAL SCIENCES

Biology

Cytology

Bowman, Scott

Botany

Cytogenetics
 (1) Mycology; (2) Plant Pathology
 (1) Mycology; (2) Plant Physiology: Microorganisms
 Photobiology
 Plant Ecology
 Plant Physiology: Vascular Plants
 Plant Taxonomy
 Plant Virology
 Taxonomy

R. Stewart
 Stevens
 Hacksaylo
 Shropshire
 Sigafos
 Cathey
 Parker
 Kaper, Schneider
 Smith

Zoology

Comparative Vertebrate Endocrinology
 Entomology: Insect Physiology
 Histophysiology
 Vertebrate: Embryology and Morphogenesis
 Vertebrate: Ichthyology

Leach
 Munson
 Desmond
 Hansen
 Schultz

RESIDENCE AND CONTINUOUS REGISTRATION

The Graduate Council expects all students to work on their doctoral programs in residence, although there is no formal regulation concerning the minimum amount of time of resident study either in preparation for the General Examination or as a doctoral candidate engaged in doctoral research. The student who undertakes either part of the doctoral program on full or limited schedule must, in accordance with University regulations, maintain continuous registration under the Graduate Council even when the Council has granted a leave of absence for study or residence elsewhere. Failure to maintain registration in each semester of the academic year disrupts the residence status of the student. In such case, the student must reapply for admission to the Council, under whatever new conditions and regulations are set up by his Consultative Committee or the member of the Council who directs his research. The student who has completed his tuition requirements, but whose graduation is deferred for any reason, must maintain "in residence" status by paying the residence fee for the semester immediately preceding the graduation at which he expects to receive his degree.

REGULATIONS

Regulations regarding REGISTRATION, FEES AND FINANCES are stated on pages 28-33; other University regulations, on pages 54-60.

POSTDOCTORAL STUDY

The Council expects its graduates to continue their interests in advanced study and research, and to contribute to its program. They may continue any studies in the University without payment of tuition, and enjoy all University library privileges. Such graduates are required to pay only the usual residence fee in order to establish their active membership in the University. The use of laboratory space and equipment is contingent upon availability, and the cost of all laboratory or special library material is paid by the graduate. Special arrangements for such privileges must be made with the Dean of the Council well before the semester in which the graduate wishes to register. Postdoctoral work taken under this privilege may not be applied toward any degree offered by the University.

TEACHING FELLOWSHIPS AND GRADUATE ASSISTANTSHIPS

A limited number of teaching fellowships are assigned annually to certain departments of instruction open to doctoral students registered in the Graduate Council. In many departments of instruction graduate assistants are appointed to assist in the academic program. Applicants for teaching fellowships and graduate assistantships should inquire directly of the chairman of the department concerned regarding vacancies, details of appointment, and the kind of personal data to be supplied for consideration.

UNITED STATES GOVERNMENT FELLOWSHIPS

The University is participating in the following Government Fellowship Programs: National Aeronautics and Space Administration Predoctoral Fellowships, National Science Foundation Cooperative Graduate Fellowships and Summer Fellowships for Graduate Teaching Assistants, and United States Public Health Service Predoctoral Fellowships and Training Grants. Qualified students should write directly to the Dean of the Graduate Council for information and applications for these Fellowships.

The School of Medicine

THE FACULTY*

John Parks, *Dean*; A. M. Griffin, *Associate Dean*; A. E. Parrish, *Associate Dean*; C. B. Ethridge, *Director of Postgraduate Medical Education*

Professors R. H. Barter, Brian Blades, T. M. Brown, Paul Calabrisi, C. S. Coakley, C. B. Ethridge, A. M. Griffin, R. S. Higdon, C. E. Leese, H. G. Mandel†, F. N. Miller, Jr., John Parks, R. C. Parlett, T. M. Peery, Mary Robbins, M. J. Romansky, J. F. Sadusk, Jr., W. W. Stanbro, Harold Stevens, I. R. Telford, C. R. Treadwell, J. W. Watts, C. S. Wise, Leon Yochelson

Clinical Professors W. S. Anderson, L. R. Culbertson, W. A. Howard, W. S. McCune, E. A. W. Sheppard

Associate Professors Clarke Davison, A. E. Parrish, C. S. Tidball

Associate Clinical Professor J. J. McFarland, Jr.

Assistant Professor J. W. McTigue

Assistant Clinical Professor J. L. Levine

Administrator of the University Hospital V. F. Ludewig

COMMITTEES‡:

THE DEAN'S COUNCIL

Brian Blades, T. M. Brown, C. S. Coakley, V. F. Ludewig, W. P. McKelway, R. C. Parlett, T. M. Peery, J. F. Sadusk, Jr.

COMMITTEE ON ADMISSIONS

Paul Calabrisi, *Chairman*

T. C. Alford, Alexander Breslow, G. A. Kelser, Jr., W. J. Nelson, J. E. Rankin

COMMITTEE ON EDUCATIONAL POLICY

T. M. Peery, *Chairman*

T. M. Brown, J. B. Christensen, Clarke Davison, R. C. Parlett, H. C. Pierpont, J. J. Rheingold, J. F. Sadusk, Jr., J. G. Sites

COMMITTEE ON SCHOLARSHIP

I. R. Telford, *Chairman*

P. C. Adkins, M. H. Jacobson, B. W. Smith, C. S. Tidball

* Faculty and committee members for the academic year 1963-64.

† On sabbatical leave spring semester 1963-64.

‡ The Dean of the School of Medicine and Associate Deans are *ex officio* members of all committees.

COMMITTEE ON RESEARCH

C. R. Treadwell, Chairman

V. H. Cohn, J. M. Evans, T. N. Johnson, N. C. Kramer, W. P. McKelway, P. E. Shorb, Jr., Harold Stevens

COMMITTEE ON LIBRARY

Seymour Alpert, Chairman

F. D. Allan, Halla Brown, E. S. Fleming, C. E. Leese, Mary Robbins, G. V. Vahouny, John Watt, Jr.

COMMITTEE ON GRADUATE AND POSTGRADUATE EDUCATION

C. B. Ethridge, Chairman

R. H. Barter, V. F. Ludewig, William Newman, R. S. Paine, J. W. Watts, Leon Yochelson

COMMITTEE ON APPOINTMENTS AND PROMOTIONS

Brian Blades, Chairman

H. G. Mandel, M. J. Romansky, C. R. Treadwell

ADVISORY COMMITTEE ON REHABILITATION

C. S. Wise, Chairman

J. P. Adams, L. R. Culbertson, J. G. Rubin, Irene Tamagna, J. R. Thistlethwaite

ADVISORY COMMITTEE ON STUDENT AFFAIRS

F. N. Miller, Chairman

Lewis Affronti, Milton Gusack, F. G. Hilkert, Irene Siu

INTRODUCTION

The School of Medicine of The George Washington University was opened in March 1825. Of the medical schools now in existence in the United States, it is the eleventh in chronological order of founding. The University Hospital and Dispensary were established in 1893 as a part of the organization of the School. The present George Washington University Hospital was opened in 1948, and the Helen L. and Mary E. Warwick Memorial Building housing the Cancer Clinic and Research Center was completed in 1954. Additional clinical facilities are used at the District of Columbia General Hospital, Children's Hospital, St. Elizabeths Hospital, Mt. Alto Veterans Administration Hospital, Fairfax Hospital, and Washington Hospital Center. The School of Medicine maintains close affiliation not only with the various divisions of the University, but also with the numerous medical research and scientific establishments of the federal government in the Nation's Capital. Washington provides world renowned library facilities, comprehensive museums, and excellent recreational facilities which are available to students.

OBJECTIVES

The purpose of the School of Medicine is to prepare men and women in the art and science of medicine to meet the health needs of a growing, ever changing society. It is the responsibility of the School of Medicine to provide its students with a systematic plan of instruction in the basic medical sciences, with well guided clinical experience, with opportunities for expression in research, and with a philosophy in keeping with the highest ethics of the profession.

To achieve these objectives the School of Medicine has developed a progressive plan of instruction and a balanced, comprehensive curriculum. To carry out the program the University maintains a faculty of adequate size and of outstanding ability and makes use of facilities which provide exceptional opportunities for research and clinical training.

PLAN OF INSTRUCTION *

The Faculty and Board of Trustees of The George Washington University have initiated a new educational program for the School of Medicine. The new program is designed to help each student develop his individual skills to maximum potential, and to prepare him to meet his full responsibilities as a medical scientist and physician.

The curriculum provides graduated instruction, beginning with basic medical science and expanding to include the more complex aspects of health maintenance and care of the sick. It provides a broad basic preparation for a career in medicine.

In the first year, the schedule begins with an orientation period designed to introduce the new students to the Faculty, the upperclassmen, and the environment for their medical education.

The first semester is devoted to the study of the sciences (Anatomy and Biochemistry) concerned with the structure and composition of the normal human body. In the second semester of the first year, the science of normal function is further emphasized by courses in Physiology. These studies of the normal provide a basis for the emphasis on health maintenance which is a strong positive characteristic of the University's new teaching program. During the second semester the student is also introduced to the concept of disease in a course in Microbiology, where the various microbial agents and their effects upon the human body are studied. Elective courses are offered in the second semester of the first year and provide an opportunity for the student to begin the development of special interests under the guidance of a skilled adviser.

The basic courses of the first semester of the second year are Pathology and Pharmacology. In the former the student learns the nature and causes of disease as well as the alterations produced by disease in the tissues and fluids of the human body. He learns to recognize the abnormal and to evaluate its significance. Pharmacology provides an understanding of the mode of action of the various agents employed in the treatment of the sick, and emphasizes the safest and most effective means for their use. Opportunities for elective study are increased during the second year.

The second semester of the second year and the first semester of the third are planned to acquaint the student with the principles and methods of clinical diagnosis and therapy, and to develop in him an awareness of his responsibility to his patients.

* A complete description of the revised curriculum and a list of electives will be included in the 1963-66 School of Medicine Catalogue, which will be published in October 1964.

He will learn, in the clinic, effective methods for interviewing and examining patients. The basic concepts of laboratory medicine are taught in special laboratory facilities. In the "Continuing Care" program each student is assigned a limited number of patients for detailed study and observation in the office, home, and hospital. During these two terms, two full days will be available each week for electives.

During the final sixteen months of the curriculum each student has a clinical clerkship assignment of 12 months in the University Hospital and Clinics, and in affiliated hospitals. Patients with a wide variety of illnesses are assigned to each student for close personal study under the guidance of a faculty skilled in the various specialties of medical practice. In the course of the clerkship, the student is given increasing responsibility as he demonstrates his competence and professional maturity. During a two months' elective period, a student will have an opportunity to explore general practice, specialty practice, or areas of research which may help him to decide the direction of his career. Students with exceptional interests may be permitted to spend their elective period in other universities, including those of foreign countries, but practically all students will find ample opportunities in the University's own published schedule of nearly 150 different electives for upperclassmen.

Upon satisfactory completion of the four-year course of the School of Medicine, the student is well prepared for graduate training leading to a career in general or specialty practice, research, medical education, or government service.

EQUIPMENT AND FACILITIES

Medical School Building.—The building housing the School of Medicine is a five-story structure with lecture rooms, classrooms, students' rooms, and the following laboratories: anatomy, biochemistry, microbiology, pathology, pharmacology, and physiology.

They are fully equipped to enable students to pursue adequately the laboratory courses and to acquire the technical skill necessary in modern clinical and investigative work.

Research and Administration Building.—The Research Building houses special laboratories for graduate and staff research in the departments of Anatomy, Biochemistry, Microbiology, Pharmacology, and Physiology. Special facilities are provided for the study of radioactive compounds, for tissue-culture techniques, and virologic procedures. Qualified students are invited to participate in certain aspects of the research program either on a volunteer basis or with the support of special Research Scholarships.

On the first floor, the west wing is occupied by a modern medical library; the east wing houses the administrative offices of the School of Medicine. Photographic laboratories and other facilities for audiovisual aids to education are on the second floor.

Medical Library.—The Medical Library in well-equipped quarters on the first floor of 1339 H Street NW., contains 27,500 carefully selected volumes, including the new medical works and the principal medical journals.

Interlibrary loan service is maintained with other medical and scientific libraries.

The Medical Library is open from 9:00 A.M. to 10:00 P.M. each class day, Monday through Friday, and from 9:00 A.M. to 5:00 P.M. Saturday.

A branch of the Medical Library is maintained in the University Hospital for the

use of the resident physicians, interns, and students. It is open Monday through Friday, 1:00 to 5:00 P.M. and 6:00 to 11:00 P.M. During the academic year the library is also open Saturday and Sunday from 1:00 to 5:00 P.M.

The George Washington University Hospital.—This 427-bed hospital is staffed and directed by the Faculty of The George Washington University School of Medicine. It provides excellent clinical opportunity for the instruction of medical students. Specialties in the fields of medicine and surgery have assigned space and equipment for the diagnosis and care of ambulatory and hospital patients.

CLINICAL FACILITIES

Students at The George Washington University School of Medicine receive clinical training at the University Hospital, at the University Cancer Clinic, and at affiliated hospitals.

The George Washington University Hospital.—The Medical Director and Chiefs of Services are responsible for the supervision of patient care. The individual student has direct responsibility to patients under supervision. Clinical conferences are held in which the history of patients, laboratory records, and the physical and pathological findings are presented and correlated.

The University Clinics.—The University Clinics have facilities for each Service in the Hospital. Students are assigned in rotation by section for instruction in the University Clinics.

The George Washington University Cancer Clinic.—The Helen L. and Mary E. Warwick Memorial Building, opened in 1954, houses the Cancer Detection Clinic and special laboratories for research related to the nature, diagnosis, and treatment of cancer.

The facilities of the Cancer Detection Clinic are used for teaching medical students. The diagnosis and treatment of various forms of neoplasms are presented. The results of treatment are evaluated by follow-up studies.

District of Columbia General Hospital.—The District of Columbia General Hospital, one of the ten largest general hospitals in the country, is a teaching facility for students of the School of Medicine.

The hospital has a bed capacity of approximately 1,450. It is the principal facility for the care of the indigent sick of the community. In 1962 the outpatient department had over 153,000 clinical visits. Approximately 180 patients are registered daily in the admitting and emergency service, of whom 12 per cent are admitted to the Hospital. This is the largest emergency service in the District, and a great variety of acute medical and surgical problems are examined and treated.

Children's Hospital.—This is one of the largest and best known hospitals for children in the United States. Medical students receive training and clinical experience in pediatrics on both clinic and inpatient services. Special lectures and clinical work in child psychiatry are given in Children's Hospital.

St. Elizabeths Hospital.—Saint Elizabeths Hospital, established by an act of Congress in 1855, is a federal psychiatric hospital administered under the Department of Health, Education, and Welfare. This Hospital provides for the treatment, care, and general well-being of approximately 8,000 patients. The facility includes a com-

pletely approved General Hospital to meet the needs for medical and surgical care and functions with a full-time staff within the Hospital plus attending physicians in various specialties.

The Hospital maintains an up-to-date medical library.

The medical students of The George Washington University utilize the facilities of Saint Elizabeths for clinical psychiatric training.

The opportunities for research are enhanced by a cooperative arrangement with the National Institute of Mental Health of the United States Public Health Service.

Mt. Alto Veterans Administration Hospital.—This 335-bed hospital, commonly referred to as Mount Alto, is predominantly general medical and surgical, although 33 beds are reserved for the care of neurological and psychiatric patients.

The Hospital is equipped and operates with all modern facilities for care and treatment of patients, including a fully equipped medical library. In addition to its medical, surgical, neurological, and psychiatric facilities, the Hospital is designated to perform specialized treatment in a wide variety of fields. The Hospital also has personnel assigned to, and cooperates closely with, the Armed Forces Institute of Pathology.

Fairfax Hospital.—This 300-bed suburban hospital, which opened February 1961, is a teaching hospital serving an area with an estimated population of 302,000. In addition to its modernly equipped emergency room, outpatient facilities, surgical suites and delivery rooms, and private psychiatric unit, programs are offered for the training of nursing personnel.

Washington Hospital Center.—A 787-bed general hospital was opened in March 1958, combining the former facilities of Emergency, Episcopal, and Garfield hospitals. Located in northwest Washington, it serves the entire metropolitan area. A very active emergency service cares for more than 35,000 patients a year. All major clinical services are provided with the exception of pediatrics. In addition to an extensive training program for house officers, the Center offers organized instruction for nurses, laboratory and X-ray technicians, and medical secretaries.

GOVERNMENT MUSEUMS

The Armed Forces Institute of Pathology, on the grounds of Walter Reed Army Medical Center, affords unexcelled opportunity for study of conditions met in general medicine and surgery as well as those of special military significance. Its collection of anatomical and pathological specimens comprises material received from all areas of the world and is unequalled in this country. The Museum of Hygiene, the National Museum, the Smithsonian Institution, the Botanic Gardens, and the various collections of the Department of Agriculture all afford opportunity for study of materials of special interest in various areas of Medicine and its allied science.

ADMISSION, REGISTRATION, FEES AND FINANCIAL REGULATIONS

Students in the School of Medicine are subject to, and are expected to familiarize themselves with, the regulations stated on pages 15-33.

Registration in the School of Medicine is for the full academic year. After a student has entered the courses of instruction he is obligated for the full tuition.

Acceptance by the School of a student's fee does not in any way obligate the School to accept the student for any subsequent year, and the right is reserved to require the withdrawal of any student whenever, in the interest of the student or the School, the Faculty deems it advisable to do so.

A fee of \$15 to defray the costs of completing the records for consideration by the Committee on Admissions must accompany each application. This fee applies to students whose premedical training was completed at this University as well as to students who have not previously attended this University. Fees for each semester are payable in advance.

The Committee on Admissions is guided in the selection of students by the applicant's academic ability, the results of the Medical College Admission Test, and personal qualifications as determined by letters of reference and personal interview. **Applicants are interviewed on invitation by the Committee.**

Each applicant is notified of the Committee's decision as soon as possible.

An applicant who is offered a place in a class is required, within two weeks, to notify the Office of Admissions of the School of Medicine of his intent to accept the place reserved for him. A deposit of \$100 must be remitted not later than January 15th prior to the opening of classes of the academic year for which he applied. This deposit will not be refunded after January 15th. It will be credited toward the tuition for the first semester.

Accompanying the offer of a place in class will be forms for a report on physical condition. This report must be completed and returned to the Office of Admissions of the School of Medicine by the student's physician within two months of receipt of the letter of acceptance.

Credit for work will not be given until, at the completion of a laboratory course, the student has replaced or paid for all articles of equipment or other University property which he has lost, broken, or destroyed.

COST OF TEXTBOOKS AND STUDENT EQUIPMENT

The minimum cost of necessary textbooks and student equipment (microscope, drawing materials, glass slides, clinical thermometer, stethoscope, hemocytometer, uniforms, etc.) is approximately as follows: first year, \$600; second year, \$275; third year, \$150; fourth year, \$100; total \$1,125.

A fee of \$1 a semester is charged for the use (optional) of a locker.

REGULATIONS

ATTENDANCE

A student is not permitted to attend classes until registration has been completed and fees due have been paid. Regular attendance is required.

GRADES

A—excellent; B—good; C—passing; D—condition; F—failure; I—incomplete. The passing grade in each subject is C or above.

The symbol I indicates that the required work of the course has not been completed for reasons acceptable to the Dean. An "incomplete" must be removed by

arrangement with the department concerned before the student may advance to the work of the following year.

A student receiving a grade of *D* or *F* in any subject may not advance to the work of the following year until he has complied with such recommendations of the Committee on Scholarship as are approved by the Faculty.

PHYSICAL EXAMINATIONS

All first-year students are required to have a comprehensive physical examination at the time of admission to the School of Medicine. The students are informed of significant findings and advised regarding such measures as will tend to help them maintain a high standard of health.

In addition medical students benefit from the complete Tuberculosis Case Finding Program which the School maintains. Under this program all students receive tuberculin tests, X-ray examinations, and such special attention from chest specialists as is necessary to reduce to a minimum the dangers from tuberculosis. Students are immunized against those diseases for which proven prophylaxis exists.

The Degree of Doctor of Medicine

Upon the satisfactory completion of the requirements of the School of Medicine, the degree of Doctor of Medicine is conferred.

COMBINED ARTS AND MEDICINE CURRICULUM

In order to be recommended for the degree of Bachelor of Arts, the candidate must complete at least 90 semester hours of prescribed college work (at least 30 hours and one year of residence must be completed in Columbian College of Arts and Sciences) and the first year of the medical curriculum. Upon satisfactory completion of the fourth year of the medical curriculum the student becomes eligible for the degree of Doctor of Medicine.

REQUIREMENTS FOR THE DEGREE

Every candidate for graduation with the degree of Doctor of Medicine must be at least twenty-one years of age, and free of all indebtedness to the University. He must have completed satisfactorily not less than four academic years of study as a matriculated student in Medicine, completed all required courses, and passed satisfactorily all prescribed examinations.

HONORS

A candidate who has completed the four-year medical course with a quality-point index of 3.50 or above, may be recommended by the Faculty for graduation "with distinction."

INTERN PROGRAMS

Straight internships are available in Medicine, Pathology, and Surgery. A mixed internship is available in Obstetrics and Gynecology.

RESIDENT PROGRAMS

Sixty-six approved residencies are offered in anesthesiology, cardiac diseases, internal medicine, neurologic surgery, neurology, obstetrics-gynecology, orthopedic surgery, pathology, physical medicine, plastic surgery, psychiatry, roentgenology, surgery, thoracic surgery, and urology. Residency programs are from one to four years in duration, depending upon the service. Residents in the University Hospital also receive appointments as members of the faculty of the School of Medicine with active teaching responsibilities.

FELLOWSHIP PROGRAMS

Fellowships, through the School of Medicine, of one or two years are available in allergy, anesthesiology, cardiology, chest diseases, gastroenterology, hematology, infectious diseases, metabolic diseases, oncology, physical medicine, renal diseases, rheumatic disease, surgery, thoracic surgery, and University Clinics.

All appointments are for one year with the privilege of applying for continuation on the House Staff. In several of the intern, residency, and fellowship programs, excellent affiliations are maintained with local and governmental hospitals. Inquiries and applications for internships and residencies should be addressed to the Chief of the Department or to the Medical Director; The George Washington University Hospital, 901 23rd Street NW., Washington, D. C. 20037.

Information relative to fellowships may be obtained from the Chief of the Department concerned or from the Director of Postgraduate Medical Education, in care of the Hospital.

Medical Technology

The Medical Technology School, organized and administered under the direction of the University Hospital, offers a 12-month course which prepares students for the national certifying examination given by the Registry of Medical Technologists. Students ordinarily begin the course with the fall semester, but under exceptional circumstances they may begin at other times. For further information and application forms, address the Department of Pathology, The George Washington University Hospital, Washington, D. C. 20037.

The Medical Technology Course also constitutes the major in the program leading to the degree of Bachelor of Science in Medical Technology (see pages 30-31), which is offered by Columbian College of Arts and Sciences in cooperation with the Pathology Department of the University Hospital.

The National Law Center

The National Law Center seeks, as an integral part of a University, to establish and coordinate programs of teaching, research, and creative development in law which will assist the profession to meet the demands placed upon it by contemporary society. The Center consists of two separate but closely related schools: the Law School and the Graduate School of Public Law. Emphasizing an interdisciplinary approach to modern social, political, scientific, and economic problems having legal implications, the Center also encourages close relations with other appropriate units of the University.

GENERAL INFORMATION

DAY AND EVENING CLASSES

Most day classes meet for fifty-minute periods between 9:10 A.M. and 1:00 P.M., Monday through Friday; Trial Practice Court meets for two-hour periods on Saturday morning.

Evening classes meet for two fifty-minute periods from 5:50 to 7:40 P.M., Monday through Friday. A four-credit course, e.g., Evidence, meets two evenings a week; a three-credit course, e.g., Administrative Law, meets two evenings a week for one half the semester and one evening for the other half; a two-credit course, e.g., Personal Property, meets one evening a week. The evening division conforms to the standards of the day division, the full-time faculty participating in the instruction.

THE LIBRARY

The Law Library of 65,000 volumes contains the official reports of the decisions of the courts of last resort of all states but one prior to the National Reporter System, and of some states complete to date; the National Reporter System, complete; the reports of the United States Supreme Court and lower federal courts, and the reports of federal administrative agencies; Shepard's Citations for the units of the Reporter System; the English Reports, Full Reprint; the English Law Reports; the Times Law Reports; the Dominion Law Reports; the United States statutes and codes; complete sets of statutes of all the states; the English statutes; the principal English and American digests and encyclopedias; collections of special reports and annotated cases; United Nations documents; and leading textbooks and treaties. Approximately 475 legal periodicals are currently received. A section of the library, consisting of books acquired from National University, is known as the National University Law Collection.

A student registered in the University is entitled to the reference use of the Uni-

versity Library. The Student Identification Card issued upon the payment of fees, must be presented as identification.

Also available to law students are 50,000 bound volumes and 20,000 pamphlets of the former library of the Carnegie Endowment for International Peace, in the fields of international law and relations, history, and economics, in the University Library.

The Law Library, which is on the third and fourth floors of Stockton Hall, is open from 9:00 A.M. to 10:00 P.M., Monday through Friday; from 9:00 A.M. to 5:00 P.M. on Saturday; and from 2:00 to 6:00 P.M. Sunday. Books and other materials do not circulate and must be used in the library.

REGULATIONS

Regulations concerning ADMISSION, REGISTRATION, FEES AND FINANCES are stated on pages 15-33; other University regulations, on pages 54-60.

AMOUNT OF WORK

Students without substantial outside employment may take a program of studies of 14 hours a week. Such students may take courses in the evening only if they are not available in the daytime and if a majority of the hours taken are in day courses. The Dean is authorized to approve 15-hour programs for second- and third-year students in exceptional cases. Students with 20 hours or more of outside employment whether in the day or evening division, must take a limited program of studies not exceeding 10 hours a week. Students taking a majority of their classes in the evening may not take more than 10 hours a week; the minimum load is 8 hours, except in special cases where 6 may be approved for a limited time. A minimum schedule of 10 hours in the day division is required except in exceptional circumstances when a reduced program is authorized by the Dean for continuing students.

ATTENDANCE

Regular attendance at classes is required and is necessary for successful work. A student who is deficient in class attendance in any course may be barred from taking the examination, and the course must be repeated.

RESEARCH PAPER IN LIEU OF EXAMINATION

The preparation of a research paper is required in lieu of an examination in the seminars and in some courses, as indicated in the course descriptions by (RP). In general, a qualified first-degree student may register for one such course; in special cases he may register for two, as for *Current Decisions* and one other.

EXAMINATIONS

Written examinations are held at the end of most courses. Every student is required to take the regular examinations unless excused. No excuse for absence will be granted except by the Dean and then only for illness or other emergency. Application for excuse must be made in writing not later than one month after the date of the examination. An entry of *I*, incomplete, will be made on the record of a student

thus excused. To receive credit for the course, he must take the next regularly scheduled examination. The examination may not be taken after exclusion for low scholarship.

Permission to take an examination before the regularly scheduled date will not be granted. Permission to take a postponed examination is limited to the situation provided for in the preceding paragraph.

A special examination will be granted only to a student entitled to take a postponed examination, who is a candidate for a degree to be conferred at a convocation which precedes the next regular examination in the subject. Written application, showing sufficient cause, should be addressed to the Dean, and approval will be granted at the discretion of the Faculty.

If a student fails to take an examination, a grade of zero will be recorded unless he has been excused from the examination as provided above or has obtained the Dean's permission to drop the course.

GRADES

Grades are given in numerical terms which are equivalent to letter grades according to the following scale: 85-100, *A*, excellent; 75-84, *B*, good; 65-74, *C*, satisfactory; 55-64, *D*, poor—below standard for graduation; below 55, *F*, failure. A student who has been excused from failure to take a regularly scheduled examination is given the grade of *I*, incomplete, and a student who has been barred from taking an examination because of excessive absences is given the grade of *EA*. See "Examinations" above, for grade upon failure to take an examination. Grades between 65 and 100 indicate that the work has been completed and credit given for the courses. Grades between 55 and 64, however, do not represent satisfactory work and adversely affect a student's cumulative average. No credit is given for grades below 55.

A student may not repeat a course he has failed, except by permission of the Faculty.

The cumulative average of a student includes all grades in all courses taken while he is a candidate for a particular degree. When a course is repeated, both the first grade and the subsequent grade or grades are counted in the cumulative average.

EXCLUSION AND PROBATION FOR POOR SCHOLARSHIP

Candidates for the Degrees of Bachelor of Laws and Juris Doctor.—A student will be excluded who fails in courses aggregating 8 or more semester hours in one semester or in two successive semesters, or who fails in courses aggregating 10 or more semester hours during his period of law study. A student subject to exclusion under this provision who is currently registered will be permitted to complete the work of the semester.

A student not subject to exclusion under the foregoing rule who at any time fails to maintain a cumulative average of at least 65 will be placed on probation. A student on probation may at the discretion of the Dean be required to reduce his program of study. A student on probation will be excluded if he has not raised his cumulative average to a least 65 by the end of the second semester following the one in which his average fell below 65. If a student on probation attains a cumulative average of at least 65 by the grades received during the semester, his status will then become clear. A maximum of three semesters of probation is allowed. Thus,

if a student whose status has become clear after two semesters of probation subsequently goes on probation, he will be allowed only one semester of probation in which to raise his average to at least 65.

In special cases, a student who has been excluded and who can demonstrate that his low grades were due to circumstances beyond his control and that he has the capacity to pursue the study of law with a definite likelihood of success, may be readmitted by the Faculty subject to such conditions as may be imposed.

Candidates for Graduate Degrees.—A candidate for one of the graduate degrees whose work is not satisfactory in the opinion of the Faculty, taking into consideration the requirements and standards for the degree, may, by action of the Faculty, be excluded at the end of the semester for which he is currently registered.

Unclassified Students.—An unclassified student whose work is not satisfactory in the opinion of the Faculty may, by action of the Faculty, be excluded at the end of the semester for which he is currently registered.

PLACEMENT SERVICE

The Law School and the Graduate School of Public Law take a continuing interest in the placement of their graduates in private practice and governmental service, as well as with industry and commerce. The Deans, the Faculties, and the University Placement Office cooperate in collecting information from alumni, law firms, and government agencies concerning opportunities in legal positions throughout the country. Senior law students and recent graduates are urged to keep in touch with the Law School Placement Office.

The Law School

FACULTY AND STAFF OF INSTRUCTION*

C. B. Nutting, *Administrator of the National Law Center*; Robert Kramer, *Dean of the Law School*; W. W. Kirkpatrick, *Assistant Dean of the Law School*; E. A. Potts, *Assistant Dean of the Law School*

Professors O. S. Colelough, R. M. Cooper†, J. F. Davison, R. G. Dixon, Jr., W. T. Fryer, J. R. Hambrick‡, Max Isenbergh (*Visiting*), W. W. Kirkpatrick, Robert Kramer, W. T. Mallison, Jr., L. H. Mayo, L. S. Merrifield†, A. S. Miller, C. B. Nutting, O. H. Walburn, D. B. Weaver, G. E. Weston†

Adjunct Professor J. W. Jackson

Professorial Lecturers Joel Barlow, E. A. Beard, Fleming Bomar, M. F. Cohen, H. B. Cox, W. W. Dunnan, J. L. Edgerton, G. J. Goldsborough, D. V. Harris, Jr., L. J. Harris, C. L. Hart, Jr., Murdock Head, P. F. Herrick, Herbert Magil, J. A. McIntire, G. E. Monk, Lester Nurick, G. N. Robillard, P. A. Rose, J. T. Sapienza, L. P. Walsh, C. J. Zinn

* Professors, Adjunct Professors, Associate Professors, Assistant Professors, and the Librarian of the Law Library constitute the Faculty.

† On leave of absence 1963-64.

‡ On sabbatical leave fall semester 1963-64.

Associate Professors R. C. Allen, M. H. Freedman, D. C. Green, S. C. Law, G. A. Iedakis, H. G. Manne, R. C. Nash, Jr., E. A. Potts, D. E. Seidelson, D. J. Sharpe, J. P. Sullivan

Associate Professorial Lecturers T. H. Brown, G. D. Cary, S. S. Cohen, P. J. Federico, H. P. Green, H. J. Liebesny, J. W. Malley, I. H. Rimel

Assistant Professors T. A. Clingan, Jr. (*Visiting*), L. A. Schiller

Lecturers W. W. Goodrich, A. H. Kaplan, Raymond Kellam, V. A. Kleinfeld, Alfred Letzler, C. G. Love, Bernard Ramundo

Clerk of the Trial Practice Court J. A. Kendrick

Associate Clerk of the Trial Practice Court D. G. Skinker

Librarian of the Law Library H. Y. Bernard, Jr.

HISTORY

The Law School, the oldest in the District of Columbia, was established in 1865 with a formal program of two years of study. This was largely through the efforts of the Reverend George Whitefield Samson, President of Columbian College, whose action resulted in the purchase of a separate building for holding law classes. This building had belonged to Trinity Church of which Francis Scott Key had been Senior Warden. It was occupied by the Law School until 1884.

Sixty graduates, from twenty-two of the then thirty-seven states, received degrees in 1867. The School continued to have a student body and a faculty which reflected the fact that it was at the seat of our nation's government. Associate Justices David J. Brewer and John Marshall Harlan of the Supreme Court of the United States were among the prominent members of the bench and bar who served as lecturers.

In 1877, one year after the first such program was adopted in the United States, the Law School instituted a course leading to the degree of Master of Laws. In 1898 the course of instruction for the degree of Bachelor of Laws was extended to three years. The School took part in 1900 in the organization of the Association of American Law Schools. Later women students were admitted, and in 1916 the first woman to take a regular course in law was graduated.

The Law School moved into its present quarters in 1925, marking the occasion with a dedicatory address by Dean Roscoe Pound. The building, Stockton Hall, is named for Rear Admiral Charles H. Stockton, President of the University from 1910 to 1917.

In the past quarter-century the Law School has developed its course and seminar offerings with consideration for the needs of first-degree and graduate students. The degree of Doctor of Juridical Science was instituted in 1940. The needs of foreign lawyers who come to this country and who require additional preparation for law work in the United States resulted in the creation of programs for the degrees of Master of Comparative Law in 1946 and Master of Comparative Law (American Practice) in 1951.

National University, which had had an important place in legal education in the District of Columbia since 1869, was merged in The George Washington University in August 1954.

Programs of special research and study, such as the independent Patent, Trade-mark, and Copyright Research Institute, give richness to the basic curriculum of the Law School.

LOCATION IN THE NATION'S CAPITAL

Of special significance is the location of the Law School in the Nation's Capital, the focal point of the law in action, both American and international. The work of the School goes on in this environment, presenting a unique opportunity for observation and study of federal agencies—judicial, legislative, and administrative.

The years of residence at law school are years of participation in the life of the community, which in the case of The George Washington University Law School, is the government of the United States. As a consequence, the study of law takes on added meaning, whether the goal be government service or practice, general or specialized, and whatever the community in which the student plans to practice.

OBJECTIVES

The primary purpose of the Law School is to prepare men and women to meet the needs of society in the many fields of law, public and private. These needs call not only for technical skill but also for responsible leadership in the development of the law and the administration of justice. In fulfilling these responsibilities the Law School conducts (1) a program of study in preparation for the practice of law, whether it be general practice, specialized practice, or government service; (2) the publication of a law journal containing the results of research in public law; and (3) a series of student professional co-curricular activities. The Graduate School of Public Law supplements this program with study and research on the graduate level for foreign as well as for American students and with a continuing legal education program for members of the bar.

THE BACHELOR OF LAWS PROGRAM

The wide geographical distribution of the students makes for a truly national law school. Students from almost every state in the Union here join students from several foreign countries in their legal training. Last year over 320 colleges and universities were represented. The basic curriculum leading to the Bachelor of Laws degree is addressed to the development and application of legal principles, skills, and ideals which are indispensable to the equipment of a lawyer for professional responsibility and leadership in modern society. It includes, first and foremost, the traditional core of legal education, namely, the study of legal materials—judicial, statutory, and administrative—and instruction in the understanding and technique of their use. It also includes the study of the nature and purpose of law, the history of the Anglo-American legal system, and the history and standards of the legal profession; practice in the skills of legal research and legal writing; elementary training in trial and appellate practice; and, through the medium of seminars, experience in group handling of legal problems.

ENTERING CLASSES

The curriculum is organized so that students may enter the Law School at the beginning of the fall or spring semester of the academic year, but not at the beginning of the summer term.

THE LAW REVIEW

The *George Washington Law Review*, published by the University, is edited and managed by students of the Law School under the supervision of a faculty adviser. It is devoted exclusively to state and federal public law. The location of the University in the National Capital, where the primary sources of federal public law may be observed in operation, affords an unexcelled opportunity for specialization in this field.

The student staff participates in a two-year *Law Review* program. The editorial staff is selected from among those students who have successfully completed the first year of *Review* work. Students receive four hours of academic credit for the two-year program.

THE STUDENT BAR ASSOCIATION

Every student in the Law School is a member of the Student Bar Association, which is organized to enable students to become better acquainted with problems of the profession, to foster professional ideals, and to bring about closer contact with members of the profession engaged in active practice of the law. The work of the Student Bar Association is carried on by various committees and by group and general meetings of a professional and social nature. From time to time lectures are given by outstanding authorities on legal and professional problems.

An important activity is the Van Vleck Case Club Competition, which provides an opportunity for training in appellate advocacy. First and second year students participate as contestants before courts composed of members of the Faculty and the local bar. Senior law students of the Case Club also sit as judges. The final argument is held before a court composed of distinguished federal judges.

The Legal Aid Program is under the joint sponsorship of The George Washington University Student Bar Association and the Junior Bar Section of the District of Columbia Bar Association. Participating students assist court-appointed attorneys in the preparation of cases for trial or appeal. Qualified second- and third-year students are eligible for participation in the program.

In the ranking of member associations by the American Law Student Association, The George Washington University Student Bar Association has received first place twice and second place twice in past years.

ORDER OF THE COIF

The Order of the Coif, a national honor society with chapters in over forty law schools, aims "to foster a spirit of careful study and to mark in a fitting manner those who have attained a high grade of scholarship." The George Washington University Chapter was established in 1926. Members are elected each year from the highest-ranking 10 per cent of the graduating class of the Law School.

CLASSIFICATION OF STUDENTS

Candidates for the degree of Bachelor of Laws are divided into classes on the completion of semester hours as follows: (1) full-time students: first year, 1-23; second year, 29-56; third year, 57 or more; (2) part-time students: first year, 1-20; second year, 21-40; third year, 41-60; fourth year, 61 or more.

UNCLASSIFIED STUDENTS

A degree candidate with an above-average record at another law school which is a member of the Association of American Law Schools or is approved by the American Bar Association may, at the discretion of the Dean, be admitted as an unclassified student to earn credits for transfer to the other law school.

Requirements for the Degrees*

To be recommended for the degree of Bachelor of Laws (LL.B.) the student must have completed a residence period of not less than three academic years (four years for evening students) and 80 semester hours of required and elective courses, with a cumulative average of at least 65. At least one academic year of residence and 28 semester hours are required of students admitted with advanced standing. Credits allowed by way of advanced standing are not included in computing the average required for graduation.

HONORS

The degree of Bachelor of Laws "with distinction" is awarded students who obtain a minimum cumulative average of 85.

RESIDENCE

Candidates for the degree of Bachelor of Laws must complete a residence period of three academic years. Attendance in the day division for the fall and spring semesters constitutes residence for an academic year; similar attendance in the evening division constitutes residence for three-fourths of an academic year. Consequently, a day student must attend 6 semesters to meet residence requirements, an evening student must attend 8. Students authorized to take schedules of less than 10 hours in the day division or less than 6 hours in the evening division receive residence credit on a proportional basis. Students who attend the summer sessions receive fractional residence credit.

CURRICULUM

Required and Elective Courses.—A program of required and elective courses has been developed to assure coverage of the basic courses and allow a degree of flexibility to meet the diverse interests of students. All first-year courses, three second-year courses, and one third-year course are required, leaving a total of 30 hours of electives. In general, second-year students are restricted to second-year electives but in

* The degree of Juris Doctor (J.D.), available only to students who entered the Law School prior to September 1961, is conferred as a recognition of the completion at The George Washington University Law School, with high rank, of the required program of study for the Bachelor's degree, including excellence in research and legal authorship. To be recommended for this degree the student must have completed: (1) a residence period of not less than three academic years (four years for evening students); (2) 80 semester hours with a cumulative average of at least B including one of the following courses: Comparative Law, Jurisprudence, or one of the graduate seminars; and (3) one year of acceptable service on the board of student editors of *The George Washington Law Review*, election to which is subject to regulations laid down by the Faculty. All requirements for the degree must be completed at this Law School.

This degree is no longer generally available.

appropriate cases the taking of third-year electives will be approved. Similarly, specially qualified third-year students may secure approval to take graduate courses and research in public law. It is important that students plan ahead regarding their electives.

Practice and Trial Practice Court.—Classroom instruction is conducted in pleading and procedure, trial and appellate practice, and evidence. This instruction includes grounding in the principles of the Federal Rules of Civil Procedure and the Federal Rules of Criminal Procedure. In addition, each senior student is required to participate in the work of the Trial Practice Court, which includes the trying of cases as junior counsel and as senior counsel. A special section of the court is devoted exclusively to the trial of patent cases. Experience in preparing and arguing appellate court cases is available through the course in Appellate Practice and Procedure and the Case Club Competition.

Patent Law.—The following courses are particularly suggested for students interested in patent law: Unfair Trade Practices, Patent Law, Patent Office Practice, Patent Trial Practice Court, Patent Interference Practice, Patent Licensing, International and Comparative Patent Law, and Federal Antitrust Laws. Additional courses recommended are Advanced Topics in Patent Law and Trade Regulation Seminar.

Curriculum.—Following is the curriculum for students beginning in the fall semester. Adjustments are made to meet the needs of students beginning in the spring semester.

DAY DIVISION

FIRST YEAR

FALL SEMESTER		SPRING SEMESTER	
	Semester Hours		Semester Hours
Contracts I	2	Constitutional Law	4
Criminal Law and Procedure	4	Contracts II	4
Legal Method and Legal System	3	Real Property	4
Personal Property	2	Torts II	2
Torts I	3		
Total	14	Total	14

SECOND YEAR

FALL SEMESTER		SPRING SEMESTER	
	Semester Hours		Semester Hours
Civil Procedure	4	Administrative Law	3
Elective	10	Evidence	4
Total	14	Elective	7
		Total	14

THIRD YEAR

FALL SEMESTER		SPRING SEMESTER	
	Semester Hours		Semester Hours
Trial Practice Court	2	Elective	12
Elective	10	Total	12
Total	12		

EVENING DIVISION

FIRST YEAR

FALL SEMESTER		Semester Hours	SPRING SEMESTER		Semester Hours
Contracts I		2	Contracts II		4
Legal Method and Legal System.....		3	Criminal Law and Procedure.....		4
Personal Property		2	Torts II		2
Torts I		3			
Total.....		10	Total.....		10

SECOND YEAR

FALL SEMESTER		Semester Hours	SPRING SEMESTER		Semester Hours
Civil Procedure		4	Constitutional Law		4
Real Property		4	Elective		6
Elective		2			
Total.....		10	Total.....		10

THIRD YEAR

FALL SEMESTER		Semester Hours	SPRING SEMESTER		Semester Hours
Administrative Law		3	Evidence		4
Elective		7	Elective		6
Total.....		10	Total.....		10

FOURTH YEAR

FALL SEMESTER		Semester Hours	SPRING SEMESTER		Semester Hours
Trial Practice Court.....		2	Elective		10
Elective		8			
Total.....		10	Total.....		10

Graduate School of Public Law

FACULTY AND STAFF OF INSTRUCTION*

L. H. Mayo, *Dean*

Professors J. F. Davison, R. G. Dixon, Jr., Robert Kramer, L. H. Mayo, L. S. Merri-
field†, A. S. Miller, C. B. Nutting, G. E. Weston†

Professorial Lecturers Joel Barlow, Fleming Bomar, M. F. Cohen, H. B. Cox, W. W.
Dunham, D. V. Harris, Jr., L. J. Harris, Murdock Head, J. A. McIntire, Lester
Nurick, J. T. Sapienza, W. S. Surrey

Associate Professors R. C. Allen, R. C. Nash, Jr., E. A. Potts

Associate Professorial Lecturers H. P. Green, H. J. Liebesny

Assistant Professor John Cibinic, Jr.

* Professors, Associate Professors, and Assistant Professors constitute the Faculty. Faculty and Staff
of instruction for the academic year 1963-64

† On leave of absence 1963-64

Lecturers S. V. Goeckjian, W. W. Goodrich, A. H. Kaplan, Raymond Kellam, V. A. Kleinfeld, Alfred Letzler, Milton Mitchell, Bernard Ramundo, G. W. Shelhorse, L. S. Wallerstein, Elcye Zenoff

HISTORY

The general concept of a graduate school of public law in the City of Washington goes back at least as far as World War II, when a group of law teachers then in government service discussed the matter on several occasions. The idea was revived some years later when the Trustees of The George Washington University adopted a resolution commending "the Law Center as being worthy of the strong support of the entire University . . . and of all those who believe that the Law Center offers an opportunity for service of the highest order." During succeeding years the concept was further refined and it was determined that the Center should include a Graduate School of Public Law with its own Dean and Faculty. In 1959 the Trustees established the School.

OBJECTIVES

The Graduate School of Public Law has two basic objectives: (1) *to improve the quality of the educational process by which lawyers are trained to cope with the increasingly complex problems of public law, including government-industry relationships and international affairs, and* (2) *to serve as an independent analysis center for the purpose of examining and evaluating selected legal-policy issues of significant contemporary and long range interest. The first objective is implemented primarily through the graduate curriculum of courses and seminars while the second is achieved through continuing research study projects. Both of these objectives are covered in the semi-autonomous programs, such as that in Government Contracts.*

PROGRAMS OF STUDY

DEGREES OF MASTER OF LAWS AND DOCTOR OF JURIDICAL SCIENCE

The administration of justice under law is a matter so vast and complex that some graduates feel the need for further study to broaden and deepen their understanding of the law. Others wish to extend their study into rapidly developing specialized fields.

The student may register as a candidate for the regular Master of Laws degree in which case he has essentially full discretion in the choice of courses and seminars or he may register for a Master of Laws program in one of the selected fields of specialization: (1) Government Procurement Law, (2) Administrative Law, (3) Patent and Trade Regulation Law, or (4) Foreign Trade and Investment Law in which event certain courses are required or recommended. Graduates of these selected Master of Laws programs have an appropriate notation made on their diplomas indicating the field of specialization. Additional information concerning these selected Master of Laws programs may be obtained from the Dean.

The degree of Doctor of Juridical Science is offered for selected students whose aim is to extend still further their studies by pursuing original research in law.

Graduate work is available to evening as well as day students for the convenience of lawyers in private practice and in government service.

CONTINUING LEGAL EDUCATION

An important part of the graduate program is the offering of courses in various fields of the law for members of the bar not interested in degree candidacy but desirous of keeping abreast of current developments. The offerings in the field of governmental regulation provide opportunities for specialization. Although third year and graduate courses are particularly suitable, second-year courses may be taken in appropriate cases. Members of the bar taking graduate work in this way register as unclassified students or as Continuing Legal Education students.

PROGRAMS FOR FOREIGN LAWYERS

To meet the needs of lawyers from countries whose legal systems are not based on the English law, the Law School provides two additional programs of study. For those who wish to acquire an understanding of our system which will permit them to work with its materials and practitioners after returning to their own countries, the program for the degree of Master of Comparative Law permits a selection of regular courses taken with undergraduate and graduate students. Foreign lawyers who wish to practice in a common law jurisdiction may enroll in the program for the degree of Master of Comparative Law (American Practice), a more intensive program of courses appropriate to this goal.

RESEARCH IN PUBLIC LAW

Research in public law is conducted under the supervision of members of the Faculty of the Graduate School of Public Law. The purpose of this research is to furnish means for training specialists in public law, either as government lawyers or as lawyers representing individuals or corporations in cases in which the Government is a party; and to assist in the analysis, clarification, formulation, and improvement of public law, substantive and procedural.

Candidates for graduate degrees and specially qualified seniors may pursue this work.

UNCLASSIFIED STUDENTS

A member of the bar or a person, not a member of the bar, who is a graduate of a member school of the Association of American Law Schools or a law school approved by the American Bar Association may, at the discretion of the Dean, be admitted as an unclassified student.

Unclassified students participate in the work of the course and take examinations. Courses taken by unclassified students will not be credited toward degrees at this School.

CONTINUING LEGAL EDUCATION STUDENTS

A simplified admission and registration procedure is used for members of the bar who desire to take courses on a noncredit basis. Continuing Legal Education students

may not participate in student activities or benefit from the medical privileges of the University.

Requirements for the Degrees

MASTER OF LAWS

To be recommended for the degree of Master of Laws (LL.M.) the student must have completed a residence period of not less than two semesters. Such residence should normally be continuous. All requirements for the degree must be completed in this School and in a period not exceeding two years after registration for work for the degree. The student must have completed, with a minimum average of 75, 20 semester hours in courses listed in the law curriculum as graduate courses except that in appropriate cases second- and third-year courses may be approved for inclusion in the program of study if not previously taken.

To be recommended for the degree of Master of Laws (LL.M.) in one of the selected fields of specialization (Government Procurement Law, Administrative Law, Patent and Trade Regulation Law, or Foreign Trade and Investment Law) 20 semester hours are also normally required. If, however, at the time of initial registration for one of the specialized Master of Laws programs it appears advisable to require additional work in order to justify the awarding of the degree (as, for example, when the candidate lacks the basic course in Administrative Law or a course in Jurisprudence or both), then the Faculty may require the completion of additional work (not to exceed 4 hours).

MASTER OF COMPARATIVE LAW

The degree of Master of Comparative Law (M.Comp.L.) is for foreign students who intend to return to their countries. To be recommended for this degree the student must have completed a residence period of not less than one academic year. He must have completed satisfactorily 24 semester hours in approved courses in the curriculum of the School or of such other departments of the University as the Faculty of the School shall approve.

MASTER OF COMPARATIVE LAW (AMERICAN PRACTICE)

The degree of Master of Comparative Law, American Practice (M.Comp.L.(Am. Prac.)) is for foreign students who intend to remain in this country. To be recommended for this degree the student must have completed a residence period of not less than one academic year. He must have completed 23 semester hours in approved courses in the curriculum of the School with a cumulative average of at least 65.

DOCTOR OF JURIDICAL SCIENCE

To be recommended for the degree of Doctor of Juridical Science (S.J.D.) the student must have completed a residence period of not less than one academic year. He must have pursued a course of study and research designated by his consultative committee and approved by the Faculty of the Graduate School of Public Law. At the conclusion of his first year of residence, or at such other time as the Faculty may set,

the candidate must pass an oral examination in those fields of study selected by the consultative committee. This examination is conducted by the consultative committee and such other members of the Faculty and qualified experts as are selected by the Faculty.

No later than the date specified in the University calendar the candidate must submit to the Dean of the Graduate School of Public Law three complete copies of the dissertation (including a summary which is to be inserted as an appendix) together with a fourth copy of the summary. It is the responsibility of the candidate for a Doctoral degree to obtain from the Dean a printed copy of the regulations governing the styling and reproduction of the dissertations, which are rigidly enforced. To be acceptable the dissertation must, in the opinion of the examining committee, constitute a substantial contribution to the field of law concerned and be suitable for publication. **Additional information will be supplied by the Dean.**

The summaries of accepted dissertations will be printed in a numbered issue of the University BULLETIN. The successful candidate for the doctorate is required, before receiving his degree, to pay a fee to cover the expense of printing the summary of his dissertation.

The School of Engineering and Applied Science

FACULTY AND STAFF OF INSTRUCTION*

M. A. Mason, *Dean*; N. T. Grisamore, *Assistant Dean (Research)*; H. E. Smith, *Assistant Dean (Academic)*

Professors G. M. Arkilic, P. A. Crafton, Louis de Pina, N. T. Grisamore, R. A. Hechtman, Robert Heller, H. D. Kube (*Visiting*), M. A. Mason, M. S. Ojalvo, A. M. Rothrock, H. E. Smith, C. H. Walther†

Adjunct Professors Churchill Eisenhart, L. A. Guildner, F. K. Harris, D. P. Johnson, A. G. McNish, Gunther Sorger, Theodore Young

Professorial Lecturers William Dorfman, Ezra Glaser, J. L. Intermaggio, Francis Washer, R. J. Wilson

Associate Professors W. J. Battin, R. E. Cronin, R. R. Fox, L. H. Glassman, John Kaye, A. C. Murdaugh

Associate Professorial Lecturers D. H. Cook, Chester Peterson, Stefan Schreier

Assistant Professors E. H. Braun, John Eftis, A. C. Melizer, R. M. Moore

Lecturers George Abraham, W. W. Balwanz, Howard Eisner, J. P. Fennell, Milton Gussow, John Jones, Jr., D. C. Rohlf, L. S. Rotolo, P. H. Sawitz, Victor Selman, P. S. Shane, N. A. Sloan, T. B. Wiggins

Instructors D. K. Anand, T. P. Carroll, Jr., J. M. Raffel

Associates Donald Baechler, J. M. Cameron

THE DEAN'S COUNCIL

M. A. Mason (*Chairman*), P. A. Crafton, N. T. Grisamore, John Kaye, M. S. Ojalvo, H. E. Smith

GENERAL INFORMATION

INTRODUCTION

The School of Engineering and Applied Science was organized October 1, 1884

* Professors, Adjunct Professors, Associate Professors, Assistant Professors, and Instructors constitute the Faculty.

† On sabbatical leave spring semester 1963-64

as the Corcoran Scientific School of Columbian University and was situated in the University Building then at 15th and H Streets, NW. The school was named in honor of William W. Corcoran, Trustee and President of the Corporation from 1869 to 1883. Day and evening courses were offered in Literature, Science, and Technology and led to the degrees of Bachelor of Science, Civil Engineer, Mechanical Engineer, and Mining Engineer. The school was among the first to accept women for degree candidacy in engineering.

In 1903 the Corcoran Scientific School, the School of Graduate Studies, and the Columbian College were merged into a single Department of Arts and Sciences. Engineering degrees were made graduate.

Administrative changes led to The Washington College of Engineering being initiated in 1905 as one of the several semi-independent undergraduate colleges of the University, each with its own Board of Trustees. The College provided instruction leading to undergraduate degrees in engineering and architecture.

In 1909 the name of the College was changed to the College of Engineering and Mechanic Arts, and the curricula were revised to give the student a thorough understanding of the theory underlying engineering practice. Emphasis was placed on the development of a knowledge of scientific principles upon which the student could build and by which he might solve new problems as they are met in practice.

The name of the school was changed again in 1914 to the College of Engineering and later to the School of Engineering. Architecture was dropped from the curriculum and degrees were limited to the field of engineering. However, the primary emphasis upon principles rather than technology which had characterized the School since 1903 was continued and has remained to this day as one of the important distinguishing features of the School.

In 1962 the name of the School became the School of Engineering and Applied Science.

The location of the School of Engineering and Applied Science in the nation's capital makes available a group of outstanding engineers and scientists as lecturers. It is traditional for the School to include these eminent professional specialists among the staff of instruction.

Those curricula of the School of Engineering and Applied Science which are within the purview of the Engineers' Council for Professional Development are accredited by that agency.

OBJECTIVE

The objective toward which the School strives is to stimulate and assist the student to develop to the limit of his capability; to acquire understanding of the principles and practices of engineering and applied science; to develop skill in the application of his knowledge to serve the needs of mankind; and to have a sense of responsibility to society and his profession.

ORIENTATION*

Students in the School of Engineering and Applied Science participate in the Orientation to the University, which is held during the week preceding registration for the fall semester. Events of the program include an advising period when mem-

* See the calendar for dates of scheduled events.

bers of the Faculty in the School are available for personal interviews to assist students in planning their programs to best prepare them for ultimate goals: an Orientation Assembly, required of all new students; a Curriculum Assembly, for guidance in the selection of courses for the coming semester; placement tests for new students; qualifying examinations for students who wish to waive curriculum requirements or qualify for advanced standing; scheduled social events; and the opportunity to discuss with older students and with staff members concerned with student activities the extra-curricular program of the University, so that a wise and rewarding selection may be made.

Placement tests are required for students entering the School of Engineering and Applied Science and are scheduled during Orientation week and again during the week prior to the spring registration for students entering at that time. The results are available to students and advisers before registration as a guide to class placement. Students shown by such tests to be inadequately prepared are required to take remedial work before undertaking courses in areas of deficiency.

PROGRAMS OF STUDY

Programs of undergraduate study are offered leading to the Engineering Technologist Certificate (see pages 139-40) and the degree of Bachelor of Science (with areas of concentration, see pages 123-24).

Graduate work is offered leading to the degree of Master of Science, Master of Engineering Administration, and Doctor of Science.

ADVISORY SYSTEM

The School of Engineering and Applied Science encourages a close Faculty-student relationship. Every entering undergraduate student is assigned a permanent Faculty adviser to assist him to orient himself in the professional discipline. Faculty advisers counsel students on their programs of study, the achievement and maintenance of satisfactory scholastic performance, professional development, and extra-curricular activity as part of the educational process. The adviser represents the student in all cases requiring Faculty action.

Students in the introductory level must obtain their advisers' approval of programs of study prior to registration.

Until a student has completed the work of the introductory level he must follow the recommendations of his adviser in all academic matters. However, an adviser may not deny a student entry into any course or activity to which he is entitled under the regulations of the School. Students in the intermediate and advanced levels are encouraged to consult their advisers. The Dean acts as temporary adviser to entering or transfer students pending assignment of their permanent advisers.

All students are encouraged to discuss college problems with their advisers or instructors at any time; and parents or guardians are invited to consult with the Dean and advisers, concerning any student problems.

Faculty advisers discharge their counseling duties in accordance with the high principles of their professional responsibility; however, the final responsibility for a student's action lies wholly with the student.

REGULATIONS

Regulations concerning ADMISSION, REGISTRATION, FEES AND FINANCES are stated on pages 15-33; other University regulations, on pages 54-60.

AMOUNT OF WORK

A full-time undergraduate student who is not on probation may take no more than 20 semester hours. A student employed more than 24 hours a week who is not on probation may take no more than 10 semester hours. In exceptional cases these limits may be exceeded with the permission of the Dean.

A student previously unemployed who accepts employment after registration must immediately report that fact to the Dean so that his schedule may be adjusted if necessary.

ATTENDANCE

A student may not attend classes until registration is completed and fees dues are paid. **A student may be dropped from any course for undue absence.**

A student suspended for any cause may not attend classes during the period of suspension.

The student is expected to attend every meeting of the course in which he is registered, fully prepared to carry on the work required. The student is held responsible for all work in the course, and all absences must be excused before provision will be made for him to make up the work missed. Excuses for absences from examinations which have been announced in advance can be obtained only by making written application to the instructor in charge of the course.

CHANGES IN PROGRAM OF STUDIES

In addition to the general University regulations on pages 54-60, the following regulations apply to students in the School of Engineering and Applied Science.

After the registration period a student may not make any changes in his registration without the approval of the Dean. Requests for changes in registration must be made on forms provided in the Office of the Dean.

During the seven days following the first day of classes of a semester, additional courses may be added to the student's program with the approval of the instructor, the student's adviser, and the Dean.

Withdrawal from any course without academic penalty after the fourteenth day following the first day of classes of a semester may be granted by the Dean under the following conditions: (1) exceptional circumstances make the request necessary; (2) the request is submitted on the official form for late withdrawals; (3) as of the date of request, the grades in all courses involved are C or better.

In the exceptional circumstances mentioned above the Dean may authorize withdrawal without academic penalty. In all cases financial regulations governing withdrawals remain in full effect.

A graduate student may withdraw from a graduate course without academic penalty only within the first four weeks of a semester.

CREDIT

Credit toward a degree is given only after registration for and satisfactory completion of the required work of classes or upon the granting of advanced standing in accordance with the regulations of the School. A student who takes a course as an auditor may not take the same course later for credit.

On request the Registrar will issue to the student a balance sheet showing the amount of work completed and the requirements, both quantitative and qualitative, remaining to be met for the degree.

HONORS LIST

The Faculty of the School of Engineering and Applied Science recognizes meritorious scholastic achievement by an Honors List, containing in alphabetical order the names of candidates for undergraduate degrees whose scholastic achievement satisfies all of the following requirements:

1. The candidate's cumulative quality-point index is equal to or exceeds 3.00.
2. At least 30 semester hours of credit have been earned while a degree candidate in the School of Engineering and Applied Science.
3. At least 15 (part-time student) or 30 (full-time student) semester hours of credit in a degree curriculum have been earned in the two semesters immediately preceding the award.
4. No grade below C has been received during the qualifying period stated above.
5. No disciplinary action has been taken in respect to the student.

The Honors List is prepared at the end of the fall and spring semesters and displayed in an appropriate public place in the School of Engineering and Applied Science. A notation is made on the student's record each time his name is included in an Honors List.

Undergraduate Study

SCHOLARSHIP

In order to qualify for the degree of Bachelor of Science, the student must have a quality point index of at least 2.00 in all work taken at this University and accepted in the School of Engineering and Applied Science.

Mid-semester Warning.—At the end of the seventh week of each semester, instructors report to the Dean the names of students whose scholarship is unsatisfactory. On receipt of a warning notice the student must consult his instructor and his adviser immediately.

The adviser may prescribe diagnostic tests and/or remedial study to be completed before the end of the current semester.

Probation.—A student whose quality-point index falls below 2.00 is placed on probation. This probation extends over the period in which the student completes a minimum of 12 semester hours of study.

A student on probation may be required to follow a program of study including

remedial studies as prescribed. He may not hold office, participate in the activities of any student organization, or represent the School in any student activity.

Suspension.—A student whose quality-point index is below 2.00 at the end of his probationary period is suspended. A student whose index falls below 2.00 after removal from probation is suspended.

At the time of his suspension a student may apply to the Dean's Council for guidance concerning remedial action he should take during the period of his suspension.

A student suspended for poor scholarship may apply to be readmitted in the semester or summer session which begins next after an interval of one calendar year. To be considered for readmission he must pass prescribed tests. A student readmitted after suspension is on probation. He must maintain a current quality-point index of at least 2.50 on each 12 semester hours of work undertaken until his cumulative index is 2.00. In no case will the probationary period after readmission exceed 24 hours of study. A student suspended twice for poor scholarship will not be readmitted.

USE OF CORRECT ENGLISH

Any student whose written or spoken English in any course is unsatisfactory may be reported by the instructor to the Dean. The Dean may assign supplementary work, without academic credit, varying in amount with the needs of the student. If the work prescribed is equivalent to a course, the regular tuition fee is charged. The granting of a degree may be delayed for failure to make up any such deficiency in English to the satisfaction of the Dean.

THE CURRICULA

Undergraduate curricula of the School have a three-level form—the Introductory Level, the Intermediate Level, and the Advanced Level. Progression from one level to the next requires a certain number of semester hours of formal study and a satisfactory demonstration, through the medium of a comprehensive evaluation, of ability to use the knowledge gained through study and the intellectual powers developed.

In general, study at the Introductory and Intermediate levels serves the purpose of acquisition and development of the broad base of information, skills, and attitudes on which the concentration of study at the Advanced Level will be founded. There is no formal specification of courses to be undertaken at the Introductory or Intermediate level; the concentration of study at the Advanced Level is specified and is related to a particular degree designation.

All undergraduate curricula lead to the degree of Bachelor of Science, with parenthetical designation of a particular area of concentration. For example: Bachelor of Science (Electronics); Bachelor of Science (Theoretical and Applied Mechanics); Bachelor of Science (Mechanical Engineering).

A minimum total of 140 semester hours is required to qualify for the degree.

Degrees are offered in the following areas:

Civil Engineering	Engineering Science
Communications	Machine Computers
Control Systems	Measurement Science
Electrical Engineering	Mechanical Engineering
Electronics	Structures
Energy Conversion	Theoretical and Applied Mechanics

Introductory Level

The student entering the School with high school preparation starts his professional studies at the Introductory Level. His choice of courses is governed by his needs for preparation in the areas of knowledge included in the intermediate comprehensive evaluation and by his interests. There is no rigid specification of courses. The difference in semester hours between the number necessary for preparation and the approximate number required (70) is available to the student for elective study in any subjects he chooses.

Thus the student can choose the most effective (for him) of several paths to the Intermediate Level, can make full use of advanced placement opportunities, proceed at his own best pace, and have experiences to assist him in formulating his ultimate educational objective.

The student is assisted in this task by his faculty adviser, who must approve his program each semester, prior to registration. For the guidance of the student and his faculty adviser, every beginning student completes the School's placement examinations in English, Reading, Algebra, and Trigonometry. The student is required to undertake remedial work in any of these areas in which he is deficient as determined by the standards of the School, prior to enrollment in courses in the area of deficiency.

The work of the introductory level may be undertaken in this School or any other accredited institution of college level, and may consist of courses in any subjects acceptable for degree credit in the institution in which they are completed; except courses in Physical Education, Secretarial Studies, or remedial subjects. The courses taken should prepare the student for the intermediate comprehensive evaluation.

INTERMEDIATE COMPREHENSIVE EVALUATION

Introductory Level study is terminated by the intermediate comprehensive evaluation, the completion of which is required for entry into further study at the Intermediate Level. The evaluation includes a written part which is similar in nature and content to the Fundamentals Section of the examinations for professional registration, an oral interview with a group of three faculty members, and a review of formal course achievement.

The areas included in the evaluation serve as a guide to students in arranging their programs of study. The content and level of the evaluation are indicated by the context of the entire evaluation rather than by the statements under any one item. The evaluation appraises the student's ability to integrate and use his knowledge as well as the extent and quality of his information.

The areas included in the evaluation and suggested courses which the student may choose to undertake as preparation are:

ANALYSIS—logic and method in analysis (ApS 4, ApS 58, Phil 121-22)

COMMUNICATION—correct use of English, spelling, composition, sketching, descriptive geometry, use of graphic aids, interpretation of drawings (Engl 1-2, ApS 3)

CHEMISTRY—introductory general chemistry (Chem 13-14)

MATHEMATICS—including analytic geometry, differential and integral calculus, ordinary and partial differential equations, finite series, complex variables, vector analysis, and finite mathematics (ApS 5-6, Math 27, 28, 111, 112)

PHYSICS—introductory general physics including molecular structure of matter and atomic physics (Physics 1-2, 31-32, 51-52, 116)

STATISTICS—principles and methods of statistics (ApS 5-6, ApS 107, Stat 91)

HUMANITIES AND SOCIAL SCIENCES—(the evaluation will require a critical essay in the area.)

The faculty evaluation is based on the written material, the oral interview, and the student's achievement record in course work. Students whose course achievement is high may be excused from the written part of the evaluation. *NO GRADE IS ASSIGNED ON THE EVALUATION.* The evaluating faculty report their appraisal as "Satisfactory" or "Deficient." In the latter case they recommend the remedial actions to be taken and may require re-evaluation at a later time or permit the student to enter the Intermediate Level.

Intermediate Level

A student enters the Intermediate Level by presenting approximately 70 hours of course work in any subjects and an intermediate comprehensive evaluation. He is admitted to Intermediate Level study by favorable decision of the faculty group which appraises the student's qualifications to proceed with study, as shown by both his course record and the evaluation. A minimum of 60 hours of course work must be presented. The comprehensive evaluation must be taken in the School of Engineering and Applied Science.

The curriculum in the Intermediate Level is determined, as in the Introductory Level, by the student's needs in preparation for the advanced comprehensive evaluation and by his interests. **There is no specification of required courses.**

At this level it is desirable for the student to anticipate, in his selections of courses, the area of concentration he intends to enter at the Advanced Level. While he continues to build foundation knowledge at this level, there is opportunity to expand the foundation in some areas in preparation for later concentration. The student is advised to plan his program at this level carefully, with the advice and assistance of his faculty adviser. At this level the student bears the entire responsibility for his study program; faculty approval is not required, but the professional advice and counsel of the student's adviser are available on request.

The following curriculum illustrates one of a number of combinations of courses that might be selected as a study program at the Intermediate Level (fifth and sixth semesters). The areas included in the advanced comprehensive evaluation serve as a guide to the student in planning his program at the Intermediate Level.

ADVANCED COMPREHENSIVE EVALUATION

Intermediate Level study is terminated by the advanced comprehensive evaluation, the completion of which is required for entry into further study at the Advanced Level. The evaluation includes a written part which is similar to portions of the examinations for professional registration, an oral interview with three faculty members, and review of the student's achievement in course work. The content and level of the evaluation material are indicated by the context of the entire evaluation rather than by the statements under any one item. The evaluation appraises the qualification of the student to proceed productively in a chosen area of concentration, and will include some material related specifically to particular areas of concentration.

The areas included in the evaluation and suggested courses the student may choose to undertake as preparation are:

ANALYTICAL MECHANICS—mechanics of rigid and deformable bodies, including soils and fluids (ApS 59-60, 62, 63-64, 68)

FIELD AND WAVE THEORY—basic theory and analysis of fields (electric, magnetic, potential, vector, etc.) and of wave motion (ApS 10, 11, 12, 63-64)

HUMANITIES AND SOCIAL SCIENCES—(The evaluation will require a substantial essay in a specific area.)

MANAGEMENT SCIENCE—basic concepts and methods of management science, elementary operations research and analysis (ApS 110, 111)

MATERIALS—structure of materials, behavior as related to structure, principles of control of material properties, quantum physics aspects (ApS 101-2, Phys 116)

METROLOGY—standards, measurement principles, error, design of experiments, standard devices, and procedures in measurement (ApS 105-6, 107)

NETWORK THEORY—basic theory and analysis of networks and elements of network synthesis (ApS 29-30, 32, 55)

THERMODYNAMICS AND ENERGY CONVERSION—fundamental concepts and theory; electrical, mechanical, thermal, and chemical energy conversion systems (ApS 85, 86, 130)

The faculty evaluation is based on the written material, the oral interview, and the student's achievement in course work. Students whose course achievement is high may be excused from the written material. **NO GRADE IS ASSIGNED ON THE EVALUATION.** The faculty appraisal is reported as "Satisfactory" or "Deficient." In the latter case they recommend the remedial actions to be taken and either may require re-evaluation or permit the student to enter the Advanced Level.

Advanced Level

A student enters the Advanced Level by presenting not less than 90 hours of course work in any subjects and an advanced comprehensive evaluation. He is admitted to Advanced Level study by favorable decision of the **faculty group which** appraises the student's qualifications to proceed with study in the **area of concentration**, as shown by both his course record and the evaluation.

Advanced Level study provides for concentration in a specific area of engineering or applied science. The curriculum (study program) is defined in detail and determines the parenthetical degree designation. Although the required courses are specified, reasonable variation from the specification is possible to accommodate particular interests and needs of the student, especially when these relate to newly developed or frontier areas or when the student has completed any of the required courses during his earlier preparation.

In contrast to study at the lower levels, study at the Advanced Level has a strong component of design and application, to give the student experience in the creative work that is the distinguishing characteristic of engineering and applied science.

All curricula at the Advanced Level include specified course work, and electives to complete the total of 140 semester hours required to qualify for degree consideration. The specified curricula at the Advanced Level follow.

GRADUATE RECORD EXAMINATIONS

During the final semester of the senior year students in the School of Engineering and Applied Science are required to take the following Graduate Record Examinations: the Aptitude Test, which provides a measure of general scholastic ability at the graduate level; and the Advanced Test (Engineering) designed to measure the achievement of the college senior in his major field of study. (For further information concerning the Graduate Record Examinations, see page 58.)

CIVIL ENGINEERING

Civil engineering is the broad branch of engineering most closely related to daily human activities. Study in this area prepares for careers in the design of buildings, bridges, aircraft and missile frames, tunnels, and dams; the planning of cities; and for research on new types of structures, new materials, and new methods of construction.

The concentration of study outlined below provides the essentials for beginning a career upon graduation, for registration as a professional civil engineer as required by law, and for continuing study at the graduate level.

REQUIRED COURSES

		Semester Hours
Ap S 62	Soil Mechanics	3
Ap S 70	Earth Science	3
Ap S 121-22	Structural Theory I-II.....	8
Engr 1	Engineering Planning and Economics.....	3
Engr 2	Regional and Urban Planning.....	3
Engr 10	Hydraulic Engineering	3
Engr 11-12	Structural Design I-II.....	6
Engr 13-14	Structural Laboratory I-II.....	6

COMMUNICATIONS

Study in this area prepares for careers in telephone, radio, and wire communications; space and satellite communications; rocket control and guidance; high frequency communications such as microwaves; and other forms of communication using vacuum tubes, transistors, light amplifiers and similar devices. Communication theory and system design are emphasized. The graduate may choose to enter research and development in the design of new methods of communication or the design, construction, and operation of communications systems.

The study outlined below provides the essentials for beginning a career upon graduation and the base for further study at the graduate level.

REQUIRED COURSES

		Semester Hours
Ap S 32	Network Analysis	3
Ap S 50	Information Theory	3
Ap S 55	Control Theory	3
Ap S 58	Analysis Methods	3
Engr 19-20	Engineering Electronics I-II.....	6
Engr 32	Introductory Transducers and Instrumentation.....	3
Engr 33	Advanced Transducers and Instrumentation.....	3
Engr 101-2	Communications Laboratory I-II.....	6
Engr 107-8	Electronics Laboratory I-II.....	6

CONTROL SYSTEMS

Control systems is a new, rapidly developing branch of technology which provides the technical means for automation and automatic control of devices, machinery, manufacturing processes, and a variety of tasks and operations. The study outlined is preparation for such activities as: design and construction of systems for space missile guidance and control, the control of nuclear reactors and atomic energy systems; automatic control of radar search devices; design of automatic machinery of all types; and the design and operation of electronic mechanisms for automatic control. The use of machine computers in control systems is emphasized.

The graduate is prepared to undertake analysis and design of control systems, to carry on research on automatic control, and to continue further study at the graduate level.

REQUIRED COURSES

	Semester Hours
Ap S 32	
Ap S 50	
Ap S 55	
Ap S 65-66	
Ap S 75	
Engr 21	
Engr 22	
Engr 32	
Engr 53	
Engr 103-4	
Network Analysis	3
Information Theory	3
Control Theory	3
System Dynamics I-II	6
Digital Circuitry and Systems	3
Application of Computers to Engineering Problems	3
Digital Techniques	3
Introductory Transducers and Instrumentation	3
Advanced Transducers and Instrumentation	3
Control Laboratory I-II	6

ELECTRICAL ENGINEERING

Electrical engineering is one of the traditional broad branches of engineering, and is primarily concerned with the uses of electrical energy in various forms. The study outlined is preparation for such activities as: analysis and design of electric power generating plants, power transmission systems, and electrical appliances; the design and application of motors, generators, and transformers; the design of electrical instruments and their use in measurement; and the design of the electrical equipment of buildings, factories, ships, aircraft, missile and rocket test and launching sites.

The study outlined provides the essentials for beginning the practice of electrical engineering (including registration as a professional electrical engineer as required by law), for continuing graduate study in any of the many specialties of electrical engineering, and for undertaking research in electrical engineering. The concentration provides a broad insight into the most common areas of electrical engineering, preparation for immediate careers in this area, and a sound base for graduate study.

REQUIRED COURSES

	Semester Hours
Ap S 32	
Ap S 130	
Engr 19-20	
Engr 21	
Engr 49-50	
Engr 105-6	
Engr 109-10	
Network Analysis	3
Electrical Energy Conversion	3
Engineering Electronics I-II	6
Application of Computers to Engineering Problems	3
Precise Electrical Measurements I-II	6
Electrical Engineering Laboratory I-II	6
Energy Conversion Laboratory I-II	6

ELECTRONICS

Electronics involves the use and control of very small amounts of electrical energy to manipulate and operate devices designed to extend and complement human nerves and brains. The study outlined is preparation for such activities as: design and use of electronic instruments in radio, telephone, facsimile, and television systems; in devices to control industrial machinery, and in computers; the design and application of transistor and solid-state circuits; the design of radar and navigation devices and systems; and the application of electronics in other branches of science and in medicine.

The graduate is prepared to undertake design, to engage in research and development of new applications of electronics, and to continue in graduate study.

REQUIRED COURSES

		Semester Hours
Ap S 32	Network Analysis	3
Ap S 55	Control Theory	3
Engr 19-20	Engineering Electronics I-II.....	6
Engr 21	Application of Computers to Engineering Problems.....	3
Engr 49-50	Precise Electrical Measurements I-II.....	6
Engr 52	Introductory Transducers and Instrumentation.....	3
Engr 53	Advanced Transducers and Instrumentation.....	3
Engr 107-8	Electronics Laboratory I-II.....	6

ENERGY CONVERSION

Energy conversion is concerned with the development and application of energy sources. The study outlined is preparation for such activities as: research on new energy sources (such as: fuel cells, biological processes, and solar batteries); development and design of energy sources employing thermionics, thermoelectricity, direct chemical conversion, photovoltaic processes, and biological processes; design and application of fuel cells, thermionic converters, electrical and electromechanical machines.

Energy conversion is a new and rapidly growing area, offering unusual opportunity. The graduate will find most opportunity in research and development, and in application of new energy sources. The study program provides preparation for such careers and for continuing graduate study.

REQUIRED COURSES

		Semester Hours
Ap S 86	Energy Conversion	3
Ap S 87	Heat Transfer Theory.....	3
Ap S 130	Electrical Energy Conversion.....	3
Engr 30	Applied Thermodynamics	3
Engr 31-32	Thermal Power I-II.....	6
Engr 35	Fluid Machinery	3
Engr 109-10	Energy Conversion Laboratory I-II.....	6
Engr 111-12	Mechanical Engineering Laboratory I-II	6

ENGINEERING SCIENCE

Engineering science is a broad area of fundamental knowledge of engineering principles, concepts, and techniques underlying all of technology. The study outlined prepares for careers in research and development of new devices and techniques for

use in scientific exploration of the oceans, space, the atmosphere, and the earth; the design and construction of devices for use in medical, biological, physical, and chemical research; the design and use of new materials, structures, and machines for control of nature; and research to improve engineering devices and methods.

The graduate of this program is most likely to engage in research and development or in graduate study through the doctoral level.

REQUIRED COURSES

	Semester Hours
Ap S 32	3
Ap S 55	3
Ap S 58	3
Ap S 63-64	6
Ap S 65-66	6
Ap S 87	3
Engr 19-20	6
Engr 21	3
Network Analysis	3
Control Theory	3
Analysis Methods	3
Fluid Mechanics I-II.....	6
System Dynamics I-II.....	6
Heat Transfer Theory.....	3
Engineering Electronics I-II.....	6
Application of Computers to Engineering Problems.....	3

MACHINE COMPUTERS

Machine computers are finding wide application in many scientific and engineering applications as well as in business and industry. Their greatest development and application are yet to come. The study outlined is preparation for such activities as mathematical (logic) and electronic design of computers; programming; coding; electronic design of circuits employing transistors and other solid-state devices; design of computer logic; the use of computers in medicine; research in computer design and applications; development of computer solutions to management, business, and industrial problems; and the design of computers for use in control systems.

The graduate will find many opportunities in industry, business, research, and teaching. The study program provides preparation for these careers and a broad base for further specialization in graduate study.

REQUIRED COURSES

	Semester Hours
Ap S 32	3
Ap S 50	3
Ap S 75	3
Engr 19-20	6
Engr 21	3
Engr 22	3
Engr 23-24	6
Engr 107-8	6
Network Analysis	3
Information Theory	3
Digital Circuitry and Systems.....	3
Engineering Electronics I-II.....	6
Application of Computers to Engineering Problems.....	3
Digital Techniques	3
Computer Laboratory I-II.....	6
Electronics Laboratory I-II.....	6

MEASUREMENT SCIENCE

Measurement science concerns the design, construction, and use of instruments in measurement, and the design of experiments. The study outline below is preparation for such activities as testing of rockets, missiles, and space vehicles; measurements of the characteristics and properties of materials; determination of standards of measurement in light, heat, optics, electricity, etc.; research in measurement methods and techniques in various fields of science and in medicine; design and construction of measuring instruments; design and execution of experiments and tests of various kinds; and control of quality of manufactured products.

The graduate will find many opportunities in space research, industry, manufacturing, and research. Opportunities are especially good in the design and application of instruments.

REQUIRED COURSES		Semester Hours
Ap S 55	Control Theory	3
Engr 19-20	Engineering Electronics I-II.....	6
Engr 49-50	Precise Electrical Measurements I-II.....	6
Engr 52	Introductory Transducers and Instrumentation.....	3
Engr 53	Advanced Transducers and Instrumentation.....	3
Engr 54	Precise Mechanical Measurements.....	4
Engr 55	Precise Heat Measurements.....	4
Engr 56	Pressure Measurements	3

MECHANICAL ENGINEERING

Mechanical engineering is the broad branch of engineering concerning machinery, equipment, and other power devices; particularly in manufacturing and industry. The study outlined below is preparation for such activities as design of power generating equipment and plants (viz: jet engines, gas turbines, steam boilers, etc.); design and construction of aircraft, missiles, automobiles, and ships; manufacture of machines and goods; design of mechanical equipment (heating, air-conditioning, automatic machinery, nuclear reactor controls) and research to develop new kinds of power machinery.

The graduate will find many opportunities in manufacturing, in design, and in research. The preparation is adequate for beginning the practice of mechanical engineering, and provides the essential knowledge needed in registration as required by law for practice as a professional mechanical engineer.

Careers in research in mechanical engineering should include additional study at the graduate level.

REQUIRED COURSES		Semester Hours
Ap S 55	Control Theory	3
Ap S 65-66	System Dynamics I-II.....	6
Ap S 87	Heat Transfer Theory.....	3
Engr 21	Application of Computers to Engineering Problems.....	3
Engr 30	Applied Thermodynamics	3
Engr 31-32	Thermal Power I-II.....	6
Engr 35	Fluid Machinery	3
Engr 111-12	Mechanical Engineering Laboratory I-II.....	6

STRUCTURES

The structures expert is concerned with the analysis and design of structures to satisfy functional requirements and withstand the forces acting. The study outlined is preparation for such activities as design of skyscrapers, tunnels, dams, missile silos and launching sites, powerhouses, bridges, and aircraft frames; the development of new types of structures (such as structures for outer space, missiles, orbiting satellites); the use of new materials in structures; analysis of structure behavior in earthquakes; and research on structural design.

The graduate will engage chiefly in analysis and design or in research. The study

program provides the essential knowledge for registration required by law to practice as a professional structural engineer, for engaging in research, and for further specialization in graduate study.

REQUIRED COURSES

		Semester Hours
Ap S 62	Soil Mechanics	3
Ap S 68	Deformable Body Mechanics.....	3
Ap S 121-22	Structural Theory I-II.....	8
Engr 1	Engineering Planning and Economics.....	3
Engr 11-12	Structural Design I-II.....	6
Engr 13-14	Structural Laboratory I-II.....	6
Engr 15	Structural Dynamics	3
Engr 21	Application of Computers to Engineering Problems.....	3

THEORETICAL AND APPLIED MECHANICS

Theoretical and applied mechanics is concerned with the behavior of matter when subjected to forces. The study outlined is preparation for such activities as: prediction and measurement of blast effects of bombs on buildings; analysis of behavior of vehicles reentering the atmosphere; development of theory defining behavior of materials; mathematical analysis; study of behavior of fluids; and applications of mechanics to celestial and space bodies.

The graduate will find most opportunity in research, particularly in regard to machines and structures; and should plan further study at the graduate level.

REQUIRED COURSES

		Semester Hours
Ap S 62	Soil Mechanics	3
Ap S 63-64	Fluid Mechanics I-II.....	6
Ap S 65-66	System Dynamics I-II.....	6
Ap S 68	Deformable Body Mechanics.....	3
Ap S 80	Introductory Astronomy	3
Ap S 87	Heat Transfer Theory.....	3
Ap S 198	Undergraduate Research	3

Graduate Study

THE MASTER'S PROGRAMS

ADMISSION TO GRADUATE STUDY

Admission to graduate study toward a Master's degree requires a Bachelor's degree from a recognized institution and evidence of capacity for productive work in the field selected.

Applicants who have significant deficiencies in their preparation may qualify for admission to graduate study by taking prescribed undergraduate courses. In some

cases such study may be carried on in addition to a limited graduate program. In no case may the undergraduate courses fulfill any part of the requirements for the graduate degree. Admission to graduate study does not admit the student to degree candidacy.

ADMISSION TO MASTER'S CANDIDACY

Application for admission to candidacy for a Master's degree must be made in writing to the Dean. To be accepted the applicant must have (1) been accepted for graduate study, (2) satisfactorily completed 9 semester hours of graduate courses, and (3) give evidence of satisfactory personal and intellectual qualifications. In exceptional cases the requirement of 9 semester hours of graduate courses may be reduced.

ADVANCED STANDING

Graduate courses completed before admission to graduate study toward a Master's degree are not transferable for degree credit. They may, however, be considered in planning individual programs. Course work to satisfy degree requirements in another school or college of the University may not be applied toward a degree in the School of Engineering and Applied Science.

The Degree of Master of Science

The objective of this discipline is a substantial comprehension of principles and methods for their use, as applied in modern technology. Increased understanding and its use in solving engineering problems are sought, rather than a breadth of familiarity with applications and techniques.

The student's program may provide for broad coverage in a variety of fields or may be designed to give some degree of specialization in a particular area, as determined by conference at the time of admission to candidacy. The specialization available is indicated by the courses of instruction in Engineering and Applied Science.

The level of the courses ordinarily requires as prerequisite the satisfactory completion of at least one undergraduate course in mathematics beyond the first course in ordinary differential equations and at least one in the area of the graduate course to be undertaken.

The Degree of Master of Engineering Administration

The objective of this discipline is to develop an understanding of the principles and a competence in the practices of administration as applied to engineering and scientific activities. Knowledge and understanding are sought rather than mere familiarity with techniques.

A study program is prescribed for each candidate; programs are integrated sequences of courses. This program is for engineers and scientists who have or anticipate responsibility for administration of engineering or scientific activities. Analysis,

case study, and quantitative approaches are emphasized in addition to the technical theories of administration.

In addition to the requirements for admission to graduate study stated below, the applicant must have an adequate knowledge of the principles of human relations, the fundamentals of accounting, and the fundamentals of statistics. This requirement can be met by the successful completion of the following undergraduate courses or an approved equivalent: Psychology 115 *Principles of Human Relations*, Accounting 115 *Survey of Accounting*, and Statistics 107 *Statistics for Engineers*. The student should have a working command of calculus.

REQUIREMENTS FOR THE DEGREE

The basic requirement for the degree is the satisfactory completion of the comprehensive examination.

RESIDENCE

The candidate must complete a minimum of one year of full-time study, or the equivalent in part-time study, in the School. A full-time student must complete all requirements for the degree within three years; a part-time student, within five years.

SCHOLARSHIP

A minimum grade of "Satisfactory" is required in all courses. A student who makes one grade of "Unsatisfactory" may repeat the course once. A student who receives two or more grades of "Unsatisfactory" will not be permitted to enroll further in the School until he demonstrates by examination, or as may be directed, that his deficiencies in course work have been removed. A minimum grade of B or better is required for undergraduate courses taken to remove deficiencies in preparation for graduate study.

PROGRAM

A minimum of 24 semester hours of graduate courses and the thesis (6 semester hours) is required. Each program is worked out with an adviser to meet the needs of the individual student.

MASTER'S THESIS

The degree candidate must submit an acceptable thesis to demonstrate his ability to make independent use of the knowledge and discipline of thought acquired and developed by graduate study, to furnish objective evidence of constructive power in a given field, and to demonstrate that he can communicate the results of his work in writing. Work of a suitable character for which the student has professional responsibility may be considered, whether done on or off campus, provided no significant amount of work is completed without faculty supervision.

The candidate must submit his thesis subject to the Dean by the stated date for the semester in which he enrolls in the first thesis course (Ap S 299, or E 299, or EA 299). He must submit his thesis in final form to the Dean by the stated date for the semester in which he enrolls in the second thesis course (Ap S 300, or E 300, or EA 300), except that in every case the final thesis must be submitted prior to the expiration of one calendar year from the date of submission of the thesis title. In case of failure to submit the final thesis as specified above, the student's candidacy and graduate study are terminated.

Candidates may enroll in the thesis course (299-300) one time.

A thesis may be submitted in final form one time. If the thesis is unacceptable to the final comprehensive examination committee the student's candidacy and graduate study are terminated.

COMPREHENSIVE EXAMINATION

The student must pass a comprehensive examination, written, oral, or both as prescribed by the Faculty, to demonstrate substantial understanding of principles and methods of their use in the area of his interest. This examination will not be taken until the candidate has successfully completed the prescribed program of study and submitted a Master's thesis. The candidate must successfully complete the final comprehensive examination, which is the basic requirement for award of the degree, on his first attempt. In the event of failure the student's candidacy and graduate study status are terminated.

The Doctoral Program

The School of Engineering and Applied Science offers a program of advanced study and research leading to the degree of Doctor of Science. This program is limited to recognized fields in engineering or applied science in which a scientific discipline exists and for which the University has adequate resources.

The Doctoral discipline is designed to prepare the student for a career of creative scholarship by providing a broad background of knowledge and an understanding of research methods. It requires study of interrelated fields of learning as well as original research in the field of central interest.

The discipline for the degree is divided into two stages. The first—made up of a study of interrelated fields of learning which support the general area of research concentration—culminates in the qualifying examination. The second—composed of research investigation of a particular subject in a special field and the presentation of such research findings in a written dissertation—culminates in the final examination.

Detailed information on the program is provided in a separate publication obtainable on request.

ADMISSION TO DOCTORAL STUDY

The applicant must have adequate preparation for advanced study, including a satisfactory Master's degree, or the equivalent, together with acceptable personal qualities and a capacity for creative scholarship. He must have capabilities and interests beyond the mere assimilation of organized materials in formal courses of instruction. Originality of mind combined with balanced judgment and accuracy in observation or experiment are necessary to the successful applicant.

APPLICATION FOR ADMISSION

Well in advance of the opening of the semester for which the student seeks admission, he should have a personal interview with the Dean or the professor under whom he wishes to study, to discuss the field of study, the University's facilities for guidance in this field, the applicant's qualifications, and the possibilities of an effective doctoral program. If an application for admission is indicated, the student will be advised concerning the details of application procedure, and his application will be referred for admission decision to a committee on admissions appointed to consider his qualifications.

LANGUAGE REQUIREMENTS

A reading knowledge is required of two foreign languages important in the student's field of interest. One language examination must be passed before admission to graduate study. The second must be passed before admission to the qualifying examination and within one year of the start of study for the qualifying examination.

STUDY FOR QUALIFYING EXAMINATION

Upon admission to study for the qualifying examination the student's admission committee becomes his Consultative Committee, which prescribes and directs his studies. The Committee assigns fields of learning to insure his breadth of knowledge and support research in his central field. Members of the Committee advise the student concerning the scope and content of these fields of study and guide him in preparation for his examination.

The purpose of the qualifying examination is to ascertain that the student's breadth of background and intellectual development are adequate to support doctoral research and investigation in his central field. The qualifying examination is both written and oral and usually extends over a period of six days. It is given by a special committee consisting of members of the student's Consultative Committee and other specialists. Upon favorable report of the examiners to the Dean the student is admitted to candidacy for the degree, to pursue his specialized study and research under the supervision of a designated member of the Faculty.

The examination is the sole test of the student's ability to qualify for admission as a candidate for the degree, and to enter the second stage of his doctoral discipline.

RESEARCH, THE DISSERTATION, AND THE FINAL EXAMINATION

The student admitted to candidacy for the degree requests as Master in Research the member of the Faculty under whom he wishes to study. The Faculty member may accept or reject such request. The research is arranged by the Master and approved by the Dean. Throughout the remainder of the doctoral program, the candidate is responsible solely to his Master in his research and in the presentation of his dissertation.

THE DISSERTATION

A dissertation is required as evidence of ability to perform scholarly research and to interpret and present its results.

No later than the date specified in the calendar the candidate must submit to the Dean three complete copies of the dissertation (including a summary which is to be inserted as an appendix) together with a fourth copy of the summary and a copy of the abstract for inclusion in the announcement of the examination. It is the responsibility of the candidate for a Doctoral degree to obtain from the Dean a printed copy of the regulations governing the styling and reproduction of the dissertation, which are rigidly enforced. The summaries of accepted dissertations will be printed in a numbered issue of the University BULLETIN. The successful candidate for the doctorate is required, before receiving his degree, to pay a fee to cover the expense of printing the summary of his dissertation.

Accepted dissertations, with accompanying drawings, become the property of the University and are deposited in the University Library, where the duplicate copies are bound and made available for circulation. Permission to publish or adapt material in them must be secured from the Dean.

THE FINAL EXAMINATION

Upon approval of the dissertation by the Master, the candidate is presented for his final examination.

The final examination is oral and is open to the public. The candidate must demonstrate a mastery of his special field of interest and of the materials and techniques used in the research. The committee of examiners includes members of the Faculty competent in the research field or in closely related subjects and may also include qualified experts brought to the University especially to participate in the examination. If the candidate satisfies the examining committee concerning the high quality and originality of his contribution to knowledge as well as his mastery of the scholarship and research techniques of his field, the Faculty recommends him for the degree of Doctor of Science.

RESIDENT AND CONTINUOUS STUDY

All of the work for the degree must be done in residence (on the campus), except when special permission is granted to conduct research in an approved off-campus facility. The student must maintain continuous registration in the School, even when granted a leave of absence. Failure to do so disrupts the student's residence status, and he must apply for readmission to graduate study under whatever new conditions and regulations are set up by his consultative committee.

There is no formal regulation concerning the minimum amount of time to be spent in preparation for the qualifying examination or as a candidate engaged in doctoral research. The qualifying examination, however, must be completed within five years of the date of admission, and the entire degree program must be completed within seven years. After admission the student may apply for his qualifying examination whenever his consultative committee believes that he is prepared to take it; his research and specialized study may be undertaken with whatever concentration of time meets the approval of his research adviser. Normally a minimum of two years of full-time study and research is spent in meeting the requirements for the degree.

The Center for Measurement Science

The Center, under the direction of the School of Engineering and Applied Science, is a cooperative activity of the University, industry, and government providing education, research, and service programs related to measurement. It was established by the University in 1960.

The principal, but not exclusive, activities of the Center are:

The education of persons for careers in measurement science:

The development and improvement of measurement, standardization, and calibration techniques, apparatus, and data—with particular reference to high precision.

The provision of staff and facilities to industry for research and consultation on measurement problems in industry, including the maintenance of primary standards of measurement directly traceable to the national standards.

The publication of results of research, manuals of practice and procedures, and information related to measurement science.

The Center maintains relations with industry and government through its Associate Program, in which interested individuals, companies, or other organizations may participate. The mutual communication, collaboration, and support made possible by this program bring vitality to the Center activities and insure attention to the needs of industry and government.

Through these and other activities the Center serves as a source of personnel competent in measurement science, as an instrument for collaborative research on measurement problems, and as a service organization providing expert capability to industrial and government organizations in the solution of their measurement problems.

THE EDUCATION PROGRAM

The Education Program of the Center consists in part of curricula offered by the School, which prepare the student to assume responsibilities in the field of measurement science. The curricula are integrated, to permit a student to terminate his formal education at any level, or to proceed to the next level. Programs lead to the Engineering Technologist Certificate and the degrees of Bachelor of Science, Master of Science, and Doctor of Science.

In addition to the certificate and degree programs, the education program includes seminars, special conferences, and short courses offered from time to time.

ENGINEERING TECHNOLOGIST CERTIFICATE

This is a two-year program open to high school graduates who meet the requirements for admission stated on pages 22 and 23. A minimum of 30 weeks and the

last 30 semester hours must be completed in residence in the School of Engineering and Applied Science.

FIRST YEAR		Semester Hours
Ap S 3	Graphical Communication	3
Ap S 4	Logic and Method in Analysis.....	3
Ap S 5-6	Finite Mathematics and Statistics.....	6
Ap S 105-6	Fundamentals of Measurement Science I-II.....	8
Math 27, 28	Calculus I-II, III-IV.....	12
Physics 11	Introductory Physics	3
Physics 14	General Physics	3
Total.....		38

SECOND YEAR		
Ap S 10	General Field Theory.....	3
Ap S 11	General Wave Theory.....	3
Ap S 52	Introductory Transducers and Instrumentation.....	3
Ap S 59-60	Introductory Analytical Mechanics I-II.....	10
Chem 13-14	General Chemistry	8
Math 111	Mathematics for Engineers and Physicists I.....	3
Physics 15, 16	General Physics	6
Total.....		36

THE RESEARCH PROGRAM

The research program of the Center includes all aspects of research and development related to measurement science. Research and/or development may be undertaken as independent studies by staff members for the Center, as studies for a sponsor under contract, or by personnel of Associates of the Center assigned to the Center to undertake the specific work. Associates receive publications of the Center; certain publications may be restricted in distribution.

THE SERVICE PROGRAM

The Center arranges for consultation and assistance of the Faculty and Staff and the use of the facilities of the Center in connection with specific problems in measurement. The program is restricted to the use of the Associates of the Center.

The Service Program also makes it possible for Associates to engage the various resources of the University, through the Center, as may be desirable and feasible, in solution of their problems in measurement.

The School of Education

THE FACULTY AND STAFF OF INSTRUCTION*

F. N. Hamblin, *Dean*; B. S. Root, *Assistant Dean*; R. E. Baker, *Assistant Dean*

Professors C. L. Angel, J. G. Allee, Jr., H. F. Bright, Elizabeth Burmer, W. T. Carroll, V. J. DeAngelis, F. N. Hamblin, R. G. Hanken, Thelma Hunt, J. H. Krupa, Helen Lawrence, C. E. Leese, G. E. McSpadden, W. H. Myers, C. W. Pettit, B. S. Root, Kathryn Towne

Professorial Lecturers K. E. Brown, D. D. Darland, R. A. Edelfelt, J. B. Holden, C. D. Hutchins, H. H. Kempfer, H. O. Johnson, J. C. Lang, Anthony Marinaccio, Madaline Remmlein, J. E. Rogers, J. P. Walsh, H. M. Wilson

Associate Professors R. E. Baker, M. G. Bilsky, Mary Coleman, H. G. Detwiler, Lyndale George†, Eva Johnson, Virginia Kirkbride, W. A. McCauley, Martha Rashid, Carol St. Cyr, Loretta Stallings‡

Associate Professorial Lecturers W. E. Amos, J. L. Cameron, Beverly Crump, John Gimcaspro, Samuel Kavruck, Zelda Kosh, C. O. McDaniels, Helen Mitchell, Eugenia Nowlin, Mary Osterndorf, Mary Scott, J. W. Suber, W. D. Thompson, LuVerne Walker

Assistant Professors J. G. Boswell, Jeannette Clapp, R. W. Eller, Margaret McIntyre, Jeanne Snodgrass

Lecturers Pat Abernethy, D. W. Hunt, R. J. Kubalak, Joanne Parker, Florence Redding, Maxine Teetsel, R. S. Westerlund, Ward Whipple, R. L. Williams

Instructors Donna Abbey, Mabel McEwan, Kathleen Mason, Nan Smith

Associates W. J. Reinhart, J. V. Camp, V. D. Elder

FIELD STUDIES

Director J. W. Charles; *Assistant Director* M. H. Jessup

FIELD SERVICE COORDINATORS

Alexander Anderson, *Assistant Principal, Washington-Lee High School, Arlington, Va.*; Mary Maré, *Assistant Principal, Dean of Girls, Wakefield High School, Arlington, Va.*

* Professors, Associate Professors, Assistant Professors, and Instructors constitute the Faculty.
† Leave of absence 1963-64

‡ On sabbatical leave 1963-64

ington, Va.; C. M. Richmond, Principal, Stratford Junior High School, Arlington, Va.

COMMITTEES*

THE DEAN'S COUNCIL†

1965: Eva Johnson, J. H. Krupa; 1966: W. T. Carroll, Carol St. Cyr;
1967: R. E. Baker, Margaret McIntyre

COMMITTEE ON GRADUATE STUDIES‡

F. N. Hamblin (*Chairman*), G. L. Angel, R. E. Baker, M. G. Bilsky, W. T. Carroll, H. G. Detwiler, Thelma Hunt, Virginia Kirkbride, W. A. McCauley, B. S. Root, Carol St. Cyr

COMMITTEE ON ADMISSIONS AND ADVANCED STANDING‡

F. N. Hamblin (*Chairman*), R. E. Baker, J. H. Krupa, B. S. Root, J. Y. Ruth, Loretta Stallings, Kathryn Towne

COMMITTEE ON SCHOLARSHIP

B. S. Root (*Chairman*), V. J. DeAngelis, Helen Lawrence, Kathryn Towne

GENERAL INFORMATION

INTRODUCTION

It is the purpose of the School of Education to prepare teachers, counselors, and administrators for the higher ranges of educational service and to offer opportunities to teachers of experience to extend their education. The School includes the departments of Education, Physical Education, and Home Economics. It offers both graduate and undergraduate work. Other departments of the University provide general education and subject-matter courses needed for a well-balanced program of teacher education. In addition to programs of study leading to degrees, the School offers nondegree programs for certification and the renewal of certificates.

The schedule of courses is arranged to meet the convenience of both full-time and part-time students. By attending evening, Saturday, and summer classes, teachers in the schools of the metropolitan Washington area and others within commuting range may complete all the requirements for a degree without giving up their positions.

REGULATIONS

Regulations concerning Admission, Registration, Fees and Finances are stated on pages 15-33; other University regulations, on pages 54-60.

* The Dean and Assistant Deans of the School of Education are members ex officio of all committees
† Elected by the Faculty
‡ Appointed by the Dean

AMOUNT OF WORK

Fifteen to 17 semester hours of credit constitute a normal program. A student with a quality-point index of 3.00 or higher, may, with the permission of the Dean enroll for 18 or 19 hours. No student may enroll for more than 19, except by permission of the Committee on Scholarship.

A student employed 15 hours or less a week may carry a normal program of college work.

A student employed from 16 to 25 hours a week may enroll for 12 or 13 hours. Such a student with a quality-point index of 3.00 or higher may, with special permission of the Dean, enroll for 15 or 16 hours.

A student employed from 26 to 34 hours a week may enroll for 9 or 10 hours. Such a student with a quality-point index of 3.00 or higher may, with special permission of the Dean, enroll for 12 or 13 hours.

A student employed 35 hours or more a week may enroll for 6 or 7 hours. Such a student with a quality-point index of 3.00 or higher may, with special permission of the Dean, enroll for 9 or 10 hours.

A student who increases his hours of employment after registration or at any time during a semester must report immediately to the Dean so that his program may be adjusted, if necessary.

THE BACHELOR'S DEGREES

The School of Education offers programs leading to the degrees of Bachelor of Arts in Education, Bachelor of Science in Home Economics*, and Bachelor of Science in Physical Education.

The program of each student must be approved by a Faculty adviser. Since each student's program is defined by his particular needs, it is important that the student have a clear concept of his major interest in education, and also that he be familiar with the teaching-certificate requirements of the locality in which he expects to teach.

Requirements for the Degrees

To be recommended for a degree a student must satisfy the admission, residence, scholarship, and curriculum requirements.

RESIDENCE

Candidates for the Bachelor's degrees must complete satisfactorily while matriculated in the School of Education a minimum of 30 semester hours, 9 of which, with the approval of the adviser, may be in Off-Campus courses of the College of General Studies.

For full details concerning continuous registration, see "In Residence Status", page 58.

* This degree will be conferred for the last time in June 1965

SCHOLARSHIP

The system of grading and of computing scholarship is described in detail on pages 54-55.

In order to graduate, a student must have a quality-point index of at least 2.00

Probation.—A student who fails to maintain a quality-point index of at least 2.00 is placed on probation. He remains on probation as long as his index is below 2.00, or until his probation is removed by the Committee on Scholarship.

Suspension.—A student on probation who fails to raise his index to 2.00 within the time specified may be suspended. A student who fails one-half or more of the minimum of 16 semester hours may be suspended.

A student suspended for poor scholarship may, within ten days, appeal his case to the Committee on Scholarship through the Dean. If the case appears to be remediable and the student seems likely to improve in his scholarship, the Committee may readmit him on probation. A student denied readmission may again, after the lapse of a calendar year, petition the Committee through the Dean for readmission. A student suspended twice will not be readmitted.

CURRICULUM REQUIREMENTS

In any of the following curricula at least 30 semester hours must consist of courses numbered above 100.

Bachelor of Arts in Education

The objective of programs leading to the degree of Bachelor of Arts in Education is to provide (1) general educational backgrounds; (2) functional command of ideas, concepts, knowledge, and skills in one or more teaching fields; (3) mastery of basic professional information and skills adequate for the beginning teacher; and (4) development of attitudes needed for success in teaching.

The general educational backgrounds needed by prospective teachers are obtained through: precollege education, college courses, work experience, leadership activities, student campus activities, and off-campus cultural opportunities.

Normally, from 60 to 64 semester hours of the total requirement are completed in the lower division of Columbian College of Arts and Sciences of this University or in an equivalent institution elsewhere. (See "Education", page 72.) Since the teaching fields differ in content, scope, and complexity, some programs are longer than others. None requires less than 126 hours of satisfactory work, exclusive of required Physical Education. All candidates are required to take and make a satisfactory score on the common part of the National Teacher Examinations. (See pages 58-59.)

Teaching-field requirements include satisfactory completion of prescribed academic courses in one or more fields, a satisfactory score on the special field examination of the National Teacher Examinations if available*, and satisfactory completion of the

* Special field examinations of the National Teacher Examinations are available in Elementary Education; Early Childhood Education; Biology and General Science; English Language and Literature; Industrial Arts; Mathematics; Chemistry, Physics, and General Science; Social Studies; Physical Education; Business Education; Music Education; Home Economics; and Art Education. Students preparing to teach History or Geography will take the special field examination in Social Studies. Students preparing to teach in fields in which special NTE field examinations are not available (Languages and Speech) must obtain a satisfactory score on a special field examination given by the instructor in the special methods course involved.

prescribed special methods courses. Programs of study are available in the following fields: art, biology, business education, chemistry, elementary education, English, French, general science, geography, German, history, mathematics, music, physical education, physics, Russian, social studies, Spanish, and speech. (See the School of Education separate catalogue for the prescribed courses in these fields.)

The student preparing to teach on the secondary level may be required to complete the prescribed courses in a minor as well as a major field. The student preparing to teach on the elementary level should use free electives within an academic field or area of specialization.

PROFESSIONAL EDUCATION

The basic professional information, skills, and attitudes needed by beginning teachers are provided through a sequence of courses to be taken in the junior and senior years. Lectures and class discussions are closely coordinated with field work. Instruction is differentiated to meet the needs of those preparing to teach on the various levels—elementary school, junior high school, senior high school, and adult.

Professional Courses—Secondary		Semester Hours
Education 108:	Human Development, Learning, and Teaching.....	3
Education 112:	Educational Measurement, or	
Statistics 104:	Statistics in Psychology and Education.....	3
Education 123:	Society and the School.....	3
Education 131:	Principles and Methods of Secondary School Teaching.....	3
Education 134:	Student Teaching in Secondary Schools.....	6-9
Three to six semester hours from the following Special Methods courses.....		3-6
Education 136:	Teaching English in Secondary Schools	
Education 137:	Teaching Speech	
Education 138:	Teaching Social Studies in Secondary Schools	
Education 139:	Teaching Art in Secondary Schools	
Education 140:	Teaching Mathematics in Secondary Schools	
Education 142:	Teaching Music in Secondary Schools	
Education 144:	Teaching Science in Secondary Schools	
Education 146:	Teaching Foreign Languages	
Education 150:	Teaching Business Subjects	
Total.....		21-27

Professional Courses—Elementary		
Education 108:	Human Development, Learning, and Teaching.....	3
Education 111:	Methods in Elementary Education.....	12
Education 112:	Educational Measurements or	
Statistics 104:	Statistics in Psychology and Education.....	3
Education 123:	Society and the School.....	3
Education 135:	Student Teaching in Elementary Schools.....	9
Total.....		30

Bachelor of Science in Home Economics*

The curriculum leading to this degree is designed to prepare young women for the important responsibility of home-making. The program can be adapted, however, to meet special requirements in nutrition, dietetics, clothing, and other related fields.

* Open only to students enrolled in the Home Economics curriculum of the lower division of Columbian College of Arts and Sciences as of September 1961 or earlier or students who transfer from other accredited institutions with enough acceptable credits to assure their completion of the program by June 1965. This degree will be conferred for the last time June 1965.

Each student must plan her work with the assistance of a faculty adviser in the Department of Home Economics.

GENERAL HOME-MAKING

JUNIOR YEAR		Semester Hours	SENIOR YEAR		Semester Hours
Home Economics 53.....		3	Home Economics 152.....		3
Home Economics 72.....		3	Home Economics 171.....		3
Home Economics 102.....		3	Home Economics 181.....		3
Home Economics 123.....		3	Home Economics 192.....		3
Physiology 115		3	Home Economics 197-98.....		6
Elective		15	Elective		12
Total.....		30	Total.....		30

Bachelor of Science in Physical Education for Men*

There are three curricula leading to this degree. The curriculum in Physical Education with an academic minor is designed to prepare students for teaching positions in smaller schools where it is necessary to teach an academic subject in addition to physical education. The Physical and Health Education curriculum prepares for the teaching of physical and health education in the larger schools. The curriculum in Physical Education and Recreation has been planned for those who wish to be prepared to direct programs of recreation in addition to the teaching of physical education.

The minimum requirements for this degree are 66 semester hours, distributed as follows:

CURRICULUM IN PHYSICAL EDUCATION WITH AN ACADEMIC MINOR

JUNIOR YEAR		Semester Hours	SENIOR YEAR		Semester Hours
Education 108		3	Education 131		3
Education 123		3	Education 134		3
Physical Education 105.....		3	Physical Education 103.....		3
Physical Education 107.....		1	Physical Education 115-16.....		4
Physical Education 113-14.....		4	Physical Education 131.....		3
Physical Education 121-22.....		6	Physical Education 133.....		3
Physical Education 158.....		3	Academic teaching field.....		8-11
Physiology 115		3	Total.....		33
Academic teaching field		4			
Elective		3			
Total.....		33			

* Candidates for the degree of Bachelor of Arts in Education may also prepare to teach Physical Education in secondary schools as a minor teaching field. Those preparing to teach in the elementary school may choose Physical Education as an area of specialization. For detailed requirements see School of Education separate catalogue.

CURRICULUM IN PHYSICAL AND HEALTH EDUCATION

JUNIOR YEAR		Semester Hours	SENIOR YEAR		Semester Hours
Education 108	.....	3	Education 131	.....	3
Education 123	.....	3	Education 134	.....	6-9
Physical Education 107	.....	1	Physical Education 103	.....	3
Physical Education 113-14	.....	4	Physical Education 105	.....	3
Physical Education 121	.....	6	Physical Education 115-16	.....	4
Physical Education 158	.....	3	Physical Education 131	.....	3
Physiology 115	.....	3	Physical Education 138	.....	3
Elective	.....	10	Elective	.....	5-8
Total	.....	33	Total	.....	33

CURRICULUM IN PHYSICAL EDUCATION AND RECREATION

JUNIOR YEAR		Semester Hours	SENIOR YEAR		Semester Hours
Education 108	.....	3	Education 131	.....	3
Education 123	.....	3	Education 134	.....	6-9
Physical Education 48	.....	2	Physical Education 103	.....	3
Physical Education 107	.....	1	Physical Education 122	.....	3
Physical Education 113-14	.....	4	Physical Education 131	.....	3
Physical Education 121	.....	3	Physical Education 138	.....	3
Physical Education 132	.....	1	Physical Education 161	.....	3
Physical Education 151-52	.....	6	Physical Education 162	.....	3
Physical Education 158	.....	3	Elective	.....	3-6
Elective	.....	7	Total	.....	33
Total	.....	33			

*Bachelor of Science in Physical Education for Women**

The Physical Education major curriculum is designed to prepare students for teaching in elementary and secondary school programs of physical education.

Within this curriculum there is opportunity for specialization in dance, corrective physical education, health education, and recreation.

The student wishing to prepare to teach another subject in addition to physical education may do so by using her elective hours to work toward a minor teaching field. Relevant work completed in Columbian College of Arts and Sciences may be counted.

JUNIOR YEAR		Semester Hours	SENIOR YEAR		Semester Hours
Education 108	.....	3	Education 131	.....	3
Education 123	.....	3	Education 134	.....	6-9
Physical Education 105-6	.....	6	Physical Education 101	.....	3
Physical Education 107	.....	1	Physical Education 103	.....	3
Physical Education 111-12	.....	4	Physical Education 113	.....	3
Physical Education 117-18	.....	2	Physical Education 131	.....	3
Physical Education 121	.....	3	Physical Education 138	.....	3
Physical Education 122	.....	3	Elective or minor teaching field	.....	5-8
Physical Education 13	.....	1	Total	.....	32
Physiology 115	.....	3			
Elective or minor teaching field	.....	5			
Total	.....	34			

* See footnote on page 146.

THE DEGREE OF MASTER OF ARTS IN EDUCATION

Programs of study leading to the degree of Master of Arts in Education are designed to enable prospective teachers and teachers of experience to increase their knowledge of professional and academic information and skills, prepare for special types of educational service, and provide opportunities for graduates of liberal arts or other nonteacher education institutions to acquire needed professional education.

From the various related departments of the University, the student and his adviser select courses to give the student an adequate background in his chosen field of service. The prospective high school or junior high school teacher will ordinarily include study in the subject which he is planning to teach as well as in professional education.

Programs for teachers-in-service and experienced teachers planning to re-enter the profession are differentiated from those for students without teaching experience. Additional information concerning these programs may be obtained by writing or telephoning to the Dean.

Graduate programs of study are available in the following fields: (1) adult education, (2) classroom teaching—to include strengthening mastery of teaching field, (3) comparative education, (4) curriculum, (5) elementary education, (6) employer training, (7) guidance, (8) history of education, (9) philosophy of education, (10) reading, (11) school administration—secondary or elementary school principalship, (12) secondary education, and (13) physical education.

ADMISSION TO CANDIDACY

The requirements for admission to candidacy for the Master's degree are stated on page 24. Those wishing to prepare for careers in guidance or administration must have had at least two years of successful teaching experience. Candidates whose undergraduate preparation does not include equivalents of the basic requirements of the degree of Bachelor of Arts in Education must make up deficiencies.

ADVANCED STANDING

For the record, advanced standing is granted for approved courses taken at other accredited institutions, but a minimum of 30 semester hours must be completed at this University as a matriculated candidate for the degree.

Advanced courses completed in this University in excess of the requirements for the Bachelor's degree may be credited toward the Master's degree to the extent of 12 semester hours, if the work fits in with the student's plan of specialization and is approved in writing by the Dean before being undertaken.

Advanced standing is not granted for work completed five or more years before application for admission or readmission to Master's candidacy.

Requirements for the Degree

PLAN OF STUDY

The plan of study leading to the degree of Master of Arts in Education requires a minimum of 33 hours of graduate credit. The plan may, at the student's option,

include a thesis carrying 6 hours of graduate credit. Whether or not a student selects the thesis option, a minimum of 18 hours, including a course in educational research methods and procedures, must be from courses planned primarily for graduate students (third-group courses). A minimum of 12 hours, not including the thesis or the research course must be from courses offered by the Department of Education.

Programs may include additional teaching-field preparation. In such cases, however, undergraduate and graduate courses combined must be at least equivalent to the undergraduate requirements for the degree of Bachelor of Arts in Education (see pages 143-45).

Programs are planned initially in conference with an admission adviser in the Office of the School of Education and subsequently with a designated adviser in the candidate's area of specialization. They take into consideration the interests of the candidate, the previous background, certification requirements of the state and locality in which he plans to teach.

All degree requirements must be completed within a period of six years after admission to study.

RESIDENCE

The satisfactory completion of 30 semester hours while a matriculated candidate for the degree is required. With the approval of the adviser, 9 of the 30 hours may be off-campus courses in the College of General Studies.

THE THESIS

If a candidate selects the thesis option, the thesis must conform to standards prescribed. A statement of these standards may be obtained at the Office of the Dean.

The choice of the thesis subject must be approved in writing by the student's adviser and filed in the Office of the Dean no later than the date announced in the University calendar. Printed copies of detailed regulations regarding the form and reproduction of the thesis are available in the Office of the Dean.

Payment of tuition for the thesis entitles the candidate, during the academic year of registration, to the advice and direction of the member of the faculty under whom the thesis is to be written. In case a thesis is unfinished, an additional successive academic year may be granted without further tuition payment. The student must, however, be registered in residence during this period. If the preparation of the thesis extends beyond the two-year period he must register for it again and pay tuition on the same basis as for a repeated course.

COMPREHENSIVE EXAMINATION

In addition to the course examinations, the candidate must pass a comprehensive examination in two parts: (1) a general three-hour examination concerned with an integrated understanding of the foundations of professional education, and (2) a special three-hour examination concerned with the candidate's area of specialization. For additional information, see the separate catalogue of the School of Education.

FIVE-YEAR PROGRAM

A candidate entering the School of Education from the lower division of Columbian College of Arts and Sciences (or with equivalent preparation) may choose a

three-year program leading to the degrees of Bachelor of Arts and Master of Arts in Education to be conferred simultaneously. The first year of this combined program will be devoted to teaching field preparation; the work of the second year will include the Bachelor of Arts junior-year professional courses and a maximum of 13 semester hours of graduate courses; that of the third and final year, senior-year undergraduate professional courses and the remaining graduate courses needed for the Master's degree. Student Teaching, to be elected in the third year, may not be taken for graduate credit. A quality-point index of at least 2.50 in undergraduate courses must be attained before beginning the work of the senior year and the program must meet all the requirements for the degrees of Bachelor of Arts and Master of Arts in Education.

THE ADVANCED PROFESSIONAL CERTIFICATE

This program is designed to prepare teachers for more effective service in their chosen fields and to enable them to qualify for a higher step in the local salary scale.

The program of studies leading to the Certificate is selected by the candidate and his adviser from the various related departments of the University in accordance with the student's needs. In general it includes 30 hours of graduate credit beyond the Master's degree. The candidate wishing to increase his teaching proficiency may include additional study in his teaching field. For information concerning available programs, see the separate catalogue of the School of Education.

ADMISSION TO CANDIDACY

The requirements for admission to candidacy for the Advanced Professional Certificate are stated on page 24. The applicant who is unable to meet the admission requirements may be admitted with deficiencies to be met by satisfactorily completing prerequisites in addition to the specified program of graduate study. Each applicant must be interviewed by a member of the Faculty of the School of Education.

ADVANCED STANDING AND TRANSFER OF CREDIT

Advanced standing is granted for appropriate graduate work completed in other accredited higher institutions. However, a minimum of 18 semester hours must be completed at this University as a matriculated candidate in the School of Education. The candidate is encouraged to include in his program study at other accredited higher institutions when such study seems to be in his best interest. Advanced standing is not granted for work completed five or more years before application for admission or readmission.

REQUIREMENTS FOR THE CERTIFICATE

PLANS OF STUDY

In planning his program the candidate should give first consideration to his particular needs. If his study for the Master's degree was largely in professional education, he may need courses in his teaching field. If his Master's preparation was in a content field, he may need professional study.

The program must include, in addition to any prerequisites, a minimum of 30 hours of graduate credit, 21 hours of which must be in third-group courses (or the equivalent at other institutions). A maximum of 6 semester hours of graduate credit in second-group courses may be included and a minimum of 12 hours in courses offered by the School of Education must be included.

RESIDENCE

Candidates for the Advanced Professional Certificate must complete satisfactorily at this University a minimum of 18 semester hours in courses offered on the campus. The balance of the program may include off-campus courses in the College of General Studies or in other approved institutions of higher learning. The candidate is not required to pursue his program of study continuously. On request, a leave of absence is granted for a period not to exceed three years.

THE DEGREE OF EDUCATION SPECIALIST

For students who have completed the requirements for a Master's degree in Education and who seek further preparation toward a specific professional objective, the School of Education provides a program of advanced study leading to the degree of Education Specialist. This degree is now available only in the field of administration, but programs in other specialties are projected.

ADMISSION TO CANDIDACY

The requirements for admission to candidacy for the degree of Education Specialist are stated on page 24. The applicant who is unable to meet the admission requirements may be admitted with deficiencies to be met by satisfactorily completing prerequisites in addition to the specified program of graduate study. Each applicant must be interviewed and recommended for admission by a staff member of the Department of Education, or by a representative in the candidate's locality appointed by the Dean of the School of Education.

PROGRAMS OF STUDY AND DEGREE REQUIREMENTS

Individual programs are developed, through the faculty-adviser plan, to fit the candidates' abilities, interests, needs, and career goals. Thirty semester hours of work beyond the requirements of the degree of Master of Arts in Education at The George Washington University are specified. At least 21 hours of this work must be taken on campus at this University. A maximum of five calendar years is allowed for completion of the program of study.

At least 12 of the required 30 hours must be in graduate courses in Education selected as appropriate from the following areas of study: (1) foundations and cognate study, (2) background and general principles of the field of study, (3) an area of specialization within the field of study.

THE COMPREHENSIVE EXAMINATION

Successful completion of two three-hour examinations is required.

THE ORAL EXAMINATION

The final oral examination must be passed at least three weeks before the degree is to be conferred. The examination is conducted by a committee consisting of members of the staff of the Department of Education and at least one successful practitioner in the appropriate area of specialization, appointed by the Committee on Graduate Studies of the School of Education.

THE DEGREE OF DOCTOR OF EDUCATION

The School of Education offers programs of advanced study leading to the degree of Doctor of Education. These programs are under the supervision of the Committee on Graduate Studies and provide opportunities for study leading to the following professional objectives: school superintendent, secondary school principal, elementary school principal, supervisor, director of guidance, director of curriculum development, professor of education, specialist in educational research, employee training, or adult education. All programs require study of interrelated areas of education as well as a doctoral dissertation in the major field of study.

Each program is divided into two parts. The first consists of preparation for and the passing of comprehensive examinations in each of four supporting fields and a major field of study. The second is composed of research investigation and the writing of a dissertation in the major field of interest and culminates in the final oral examination.

ADMISSION

The applicant must possess adequate preparation for advanced study including graduate work in fields prerequisite to his objective equivalent to that required for the degree of Master of Arts in Education at this University, at least three years of successful pertinent educational experience, acceptable personal qualities, and a capacity for creative scholarship and effective leadership.

The applicant first arranges for an interview with the Assistant Dean for advanced graduate studies to explore his needs in relation to the resources of the School of Education and to provide the guidance needed to proceed with an application for advanced study.

To be admitted to study for the degree, the applicant must be accepted by the Committee on Graduate Studies on the basis of (1) his previous scholastic and professional record; (2) the results of prescribed admission tests including the Aptitude Test of the Graduate Record Examination; (3) individual evaluation through personal conferences with at least three faculty members including the major professor under whom the applicant wishes to pursue his work; and (4) the outcome of a group interview with the Committee on Graduate Studies.

COMMITTEE ON GRADUATE STUDIES

The responsibility for selection of supporting and major fields rests with the candidate. Each applicant when he appears before the Committee on Graduate Studies should be prepared to present an outline of his plan of study including the selection of major and supporting fields and the tools of investigation needed for the completion of a doctoral dissertation. The tools may include one foreign language or more, statistical methods, or historical criticism. Candidates with less preparation than

that normally required for a Bachelor's and Master's degree in Education must make up their deficiencies either prerequisite to or as part of their graduate work.

STUDY FOR THE MAJOR AND SUPPORTING FIELD EXAMINATIONS

The requirements for the degree of Doctor of Education cannot be stated in semester hours, but they consist in general of at least two to three years of full-time work, or the equivalent in part-time work, beyond the degree of Master of Arts in Education. Upon admission to study for the first part of a doctoral program the applicant is assigned to a Committee which prescribes and directs his studies. The Committee is composed of professors who will direct the student's work in the major and four supporting fields. Preparation for and the passing of supporting field examinations precedes preparation for and taking the final examination in the major field.

A student is required to consult individually with supporting and major field professors in order to determine the requirements for each field of study and to receive guidance in preparation for each examination. Supporting field examinations are written and are six hours in length. The major field examination is twelve hours in length, six hours on each of two successive days. Upon satisfactory completion of all supporting and major field examinations the student, upon recommendation of the Committee on Graduate Studies, is permitted to pursue the second part of his doctoral program.

THE DISSERTATION AND THE FINAL EXAMINATION

The student permitted to continue the second part of a doctoral program is assigned to a Master in Research, generally the major field adviser. Throughout the remainder of the program, the candidate is responsible solely to his Master in Research. Two additional faculty members assist the Master in reading the first draft of the candidate's dissertation. When the dissertation is considered acceptable, the Master recommends the candidate to the Dean for the final oral examination.

The final oral examination must be passed at least three weeks before the degree is to be conferred. The examination is conducted by a committee of the Faculty appointed by the Dean, supplemented by at least two leaders in the candidate's field of study from outside the University. The examination is open to the public. Candidates who successfully pass the oral examination are recommended for the degree by the Faculty of the School of Education.

RESIDENCE AND CONTINUOUS STUDY

All the preparation for the degree must be done in residence. The student must maintain continuous registration in the School of Education, except when the Committee on Graduate Studies has granted a leave of absence. Failure to maintain registration in each semester of the academic year may result in lapse of candidacy. Subsequent readmission is subject to whatever new conditions and regulations have been established by the Committee on Graduate Studies.

There is no formal regulation concerning the minimum amount of time to be spent in preparation for the minor and supporting field examinations or as a candidate engaged in doctoral research. The supporting and major field examinations, however, must be completed within five years of the date of admission and the entire

program must be completed within eight years, regardless of full-time or part-time study. Each candidate is required to complete one semester or more of his program in full-time study. Full-time study of six weeks or more in each of two Summer Sessions is equivalent to full-time study for one semester.

SPECIAL PROGRAM IN ELEMENTARY TEACHER EDUCATION

For six years, beginning with 1963-64, the School of Education will offer an intensive fifth-year program designed to prepare outstanding graduates of accredited liberal arts colleges for teaching in elementary schools. This program is supported by a grant from The Ford Foundation. Successful fulfillment of its requirements leads to certification as an elementary teacher and fifteen hours of graduate credit toward the degree of Master of Arts in Education.

Grants-in-aid, in amounts justified by need, may be secured to cover the tuition expenses of the program. Brochures of information may be secured by writing to: Program Director, Special Program in Elementary Teacher Education, School of Education, The George Washington University, Washington, D. C. 20006

ADMISSION TO THE PROGRAM

To be admitted as a student intern, an applicant must (1) have a Bachelor's degree from an accredited liberal arts institution, including courses which will meet the general education requirements for teacher certification, (2) show evidence of interest in children and a sincere desire to teach, (3) submit three written references attesting to quality of academic record and personality, (4) submit a score on the Aptitude Test of the Graduate Record Examination, and (5) be interviewed by the University Selection Committee, or under arrangements specified by the Committee and approved by the Dean of the School of Education.

PLAN OF STUDY

The program of study begins with a six-week summer session and continues through the first twelve weeks of the fall semester. Course work during this time is planned to help each student gain understanding of (1) the characteristics of elementary school children, (2) the subject-matter areas of the elementary school curriculum, (3) basic dimensions of teaching methodology, (4) the relationship between educational theory and methods, (5) educational tests and measurements, and (6) the role of the school in American society.

During the last six weeks of the fall semester, students will be given full-time student teaching assignment in a near by public school. This part of the program will permit the student to use, in an actual teaching situation, the educational theories and methods which he has been studying. It is accompanied by a weekly on-campus seminar.

A salaried internship during the spring semester in one of the cooperating school systems in the area gives the student an opportunity to assume the responsibilities of a beginning teacher, with the help and guidance of university and public school staff members. Seminar meetings will be scheduled weekly for discussion of common problems and for cooperatively planned work on individual and group needs of interns.

School of Government, Business, and International Affairs

A. M. Woodruff, *Dean*; L. W. Williams, *Assistant Dean*

Programs in Government and Business

FACULTY AND STAFF OF INSTRUCTION*

J. C. Dockeray, *Assistant Dean*

Professors H. F. Bright, D. S. Brown, T. H. Carroll, J. C. Dockeray, R. B. Eastin, R. F. Erieson, F. H. Gibbs, T. W. Holland, G. C. Jacobus, J. L. Jessup, E. H. Johnson, Solomon Kullback, Edwin Lewis, G. L. Lippitt, J. W. Skinner, Waldo Somers, K. E. Stromsem, D. S. Watson, A. M. Woodruff

Professorial Lecturers S. N. Alexander, Charles Berns, J. L. Buckler, C. W. Clewlow, L. C. Collins, Seymour Geisser, C. E. Goode, Samuel Greenhouse, Frank Higginbotham, C. E. Houston, Robert Kaye, Tom Kouzes, J. L. Krieger, C. U. Letourneau, K. F. McClure, Edward McCrensky, J. P. Murphy, M. E. Ogdon, J. M. Parrish, Ben Posner, M. H. Schwartz, F. I. Shaffner, Clark Simpson, I. E. Steele, J. N. Stonesifer, Clark Tibbitts, W. G. Torpey

Associate Professors J. G. Brown, E. W. Camp, D. R. Cloutier, J. W. Conighan, Leon Gintzig, F. C. Kurtz, H. L. LeBlanc, C. M. Mickey, Joseph Monane (*Research*), J. H. Walters, Jr.

Associate Professorial Lecturers Norman Beckman, W. W. Brownholtz, C. M. Campbell, O. C. Disler, J. F. Doubleday, Samuel Humes, George Idelson, V. B. Lewis, J. A. Morrow, Ross Pollock, E. E. Pontius, Jr., John Provan, P. C. Tosini

Assistant Professors G. F. Conner, M. G. Gallagher, R. E. Griffiths, A. D. Larson, H. R. Page, L. C. Smith, R. E. Thomas

* Professors, Associate Professors, Assistant Professors, and Instructors constitute the Faculty. Faculty and Staff of Instruction is for the academic year 1963-64.

Lecturers G. R. Allen, Jr., R. J. Bond, Jerome Bracken, C. J. Brinkman, J. E. Daly, Jr., Richard Foster, Aladino Gavazzi, D. K. Good, J. F. Lieblich, O. B. Martinson, Jr., F. X. McKenna, R. W. Perkins, J. F. Regan, D. E. Russell, J. A. Schatier, Leslie This, D. E. Van Tijn, Jr.

Instructor J. R. Roman, Jr.

Associate Charles Eskew

COMMITTEES*

DEAN'S COUNCIL

Waldo Sommers (*Chairman*), R. B. Eastin, F. H. Gibbs, F. C. Kurtz, K. E. Stromsen

COMMITTEE ON CURRICULUM AND PROGRAMS IN GOVERNMENT AND BUSINESS

J. C. Dockeray (*Chairman*), J. W. Coughlan, R. B. Eastin, F. H. Gibbs, H. R. Page

COMMITTEE ON DOCTORAL STUDIES IN BUSINESS ADMINISTRATION AND PUBLIC ADMINISTRATION

J. C. Dockeray (*Chairman*), D. R. Cloutier, J. W. Coughlan, R. B. Eastin, E. H. Johnson, D. S. Watson

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* The Dean and Assistant Dean of the School and the Assistant Dean, Programs in Government and Business, are members ex officio of all committees.

Programs in International Affairs

FACULTY AND STAFF OF INSTRUCTION*

R. S. Jordan, *Assistant Dean*—January 1–June 1, 1964; H. M. Stout, *Assistant Dean*
—beginning June 1, 1964

Professors J. L. B. Atkinson, J. W. Brewert, R. D. Campbell‡, W. C. Davis§, R. H. Davison, C. E. Galbreath, W. C. Hopkins, W. H. Kraus, K. L. London, H. M. Merri-
man, Franz Michael (*Visiting*), J. N. Mosél, R. E. Purcell (*Visiting*), Wilson
Schmidt§, H. M. Stout, W. L. Tayler, George Taylor (*Visiting*), R. B. Thompson
Professorial Lecturers R. L. Carthoff, P. W. Han, H. C. Hinton, J. J. Karch, Lothar
Metzl, V. P. Petrov, R. K. White, T. W. Wolfe
Associate Professors Joseph Aschheim, J. T. Davis, R. S. Jordan, H. R. Ludden§,
Benjamin Nimer, C. D. Overstreet (*Research*), George Stambuk
Associate Professorial Lecturer Warren Eitler
Assistant Professors P. F. Gallagher, Michael Gasster, P. P. Hill, J. K. McDonald
Lecturers Paul Gekker, Bernard Ramundo

COMMITTEES¶

DEAN'S COUNCIL

W. H. Kraus (*Chairman*), C. E. Galbreath, H. M. Merri-man, H. M. Stout

COMMITTEE ON CURRICULUM AND PROGRAMS IN INTERNATIONAL AFFAIRS

W. H. Kraus (*Chairman*), J. W. Brewer, R. H. Davison, R. S. Jordan, H. M. Merri-
man, J. N. Mosél, Benjamin Nimer, J. W. Skinner

INTRODUCTION

The School of Government, Business, and International Affairs was established in 1993 as the School of Comparative Jurisprudence and Diplomacy. In 1923 it was reorganized and broadened as the School of Government. During the next two decades the scope of the School broadened further with the addition of programs in business administration and public administration. In the same period the School gradually changed from primary emphasis on undergraduate study to emphasis on graduate work. In 1960 the name was changed to the School of Government, Business, and International Affairs.

The School offers undergraduate and graduate programs in various fields of Accounting, Business Administration, Business and Economic Statistics, International Affairs, and Public Affairs. Students in the freshman and sophomore years are registered in the lower division of Columbian College of Arts and Sciences, the liberal

* Professors, Associate Professors, Assistant Professors, and Instructors constitute the Faculty. Faculty and Staff of Instruction is for the academic year 1963-64.

‡ On sabbatical leave spring semester 1963-64.

§ On leave of absence spring semester 1963-64.

¶ On leave of absence 1963-64.

The Dean and Assistant Dean of the School and the Assistant Dean Programs in International Affairs are ex officio members of all committees.

arts college of the University. Here they are assigned special advisers to assist them in planning their programs. Graduate work only is offered in the fields of Economic Policy, Health Care Administration, Personnel Administration, and Public Administration.

OBJECTIVES

The School of Government, Business, and International Affairs offers programs to prepare men and women for careers in the conduct of public and international affairs, as well as programs to equip students for eventual senior administrative responsibility in business and government. The development of mid-career programs for executives has become a further objective of national significance.

The School was reorganized in 1960 in recognition of the growing interdependence of business and government at both the national and international levels. The programs in Government and Business include examination of administrative principles and the quantitative approaches to decision-making common to both business and government. These programs stress the points at which major policy decisions of either business or government must give consideration to related policy decisions of the other. Emphasis is placed upon the fact that management education is not limited to organizational techniques, but is, in its broadest sense, education for management responsibility.

International Affairs is an area of higher education in which programs have been offered by the School of Government, the predecessor of the present School, since its inception. These programs, based on the fundamentals of economics, history, politics, and law, also give recognition to the international impact of American business activity.

REGULATIONS

Regulations concerning Admission, Registration, Fees and Finances are stated on pages 15-33; other University regulations, on pages 54-60.

ATTENDANCE

A student may not attend classes until registration is completed and fees due are paid. A student may be dropped from any course for undue absence.

The student is held responsible for all the work of the courses in which he is registered, and all absences must be excused by the instructor in charge before provision is made for him to make up the work missed.

A student suspended for any cause may not attend classes during the period of suspension.

INDEPENDENT STUDY PLAN

A student of demonstrated capacity, with a special interest in the subject matter of a course, may be permitted to undertake study under the personal direction of an instructor, in accordance with the rules of the appropriate department. Credit under this plan is limited to the specific course credits normally allowed when taken on a class basis.

The Bachelor's Degrees

The School offers programs leading to (1) the degree of Bachelor of Arts in Government with majors in International Affairs or Public Affairs and (2) the degree of Bachelor of Business Administration with majors in Accounting, Business Administration, and Business and Economic Statistics.

THE REQUIREMENTS FOR THE DEGREES

AMOUNT OF WORK

A full-time student not on probation may not ordinarily take more than 15 semester hours. A student employed more than 24 hours a week, who is not on probation, may not take more than 9 semester hours.

A full-time student whose quality-point index is 3.50 or higher may take not more than 18 semester hours. A student employed more than 24 hours a week, whose index is 3.50 or higher, may take up to 12 semester hours.

A student who accepts employment after registration or at any time during a semester must report immediately to the Dean, so that his program may be adjusted if necessary.

Exception to these rules will require the approval of the Dean.

SCHOLARSHIP

In order to graduate, a student must have the following: (1) a general quality-point index of at least 2.00 and (2) an index in his major of at least 2.50. The major includes the required courses and courses taken in the group options.

DEAN'S HONOR LIST

The names of students who achieve a quality-point index of 3.50 or higher are placed on the Dean's Honor List for that semester. Appearance on the List will be limited to (1) full-time students registered for a minimum of 12 semester hours and (2) part-time students registered for a minimum of 12 semester hours over a period of two consecutive semesters, which may include a summer term.

PROBATION

A student whose quality-point index falls below 2.00 after completing a minimum of 12 semester hours of study, will be placed on probation. This probation extends over the period in which the student attempts 12 semester hours of work which may include remedial studies as prescribed.

SUSPENSION

A student whose quality-point index is 1.50 or below or whose index remains below 2.00 at the end of his probationary period may be suspended. A student suspended for poor scholarship may apply for readmission after an interval of one calendar year. To be considered for readmission, he must pass prescribed tests and

submit evidence to the appropriate Dean's Council that during his absence from the University he has so conducted himself as to indicate that he will profit by readmission. A student readmitted after suspension is on probation and must maintain a current quality-point index of at least 2.50 on each 12 semester hours of work undertaken until his cumulative index is 2.00. In no case will the probationary period after readmission exceed 24 hours of study. A student suspended twice for poor scholarship will not be readmitted.

RESIDENCE

A minimum of 30 semester hours, including at least 12 hours in the major field, must be completed in residence in the School of Government, Business, and International Affairs. This requirement applies to students transferring within the University as well as to students transferring from other institutions. Summer work may be counted in residence, but in no case may the period of residence aggregate less than thirty weeks. Unless special permission is granted by the Dean to pursue work elsewhere, the work of the senior or final year must be completed in residence.

GRADUATE RECORD EXAMINATION

All candidates for Bachelor's degrees are required to take two parts of the Graduate Record Examination in the University's institutional testing program. The examinations are conducted by the University twice a year: the Fall Testing Session for seniors graduating in February, and the Spring Session for those graduating in June. Students expecting to complete degree requirements during the summer sessions should take the examination in the Spring Session.

By special permission seniors who expect to graduate in June may take the Graduate Record Examination at the previous Fall Testing Session, so as to have transcripts available early in the year when applying for admission to graduate schools. Dates of the examinations are announced in the Calendar.

Each senior required to take the Graduate Record Examination must register for it in the office of the Dean when he registers for his final regular semester of study (excluding summer sessions). A \$10 examination fee is payable at the time of registration.

Students will receive individual reports of test scores and may avail themselves of the regular transcript services of the Educational Testing Service.

USE OF CORRECT ENGLISH

Any student whose written or spoken English in any course is unsatisfactory may be reported by the instructor to the Dean. The Dean may assign supplementary work, without academic credit, varying in amount with the needs of the student. If the work prescribed is equivalent to a course, the regular tuition fee is charged. The granting of a degree may be delayed for failure to make up any such deficiency in English to the satisfaction of the Dean.

STUDY ABROAD

Study abroad during the junior year is encouraged. Students wishing to study abroad must consult with their advisers and the Dean, because individual arrangements are made in each case.

CORRESPONDENCE AND HOME-STUDY COURSES

Credit for correspondence or home-study courses is not acceptable and cannot be applied toward a degree.

CURRICULUM REQUIREMENTS

To be recommended by the Faculty for graduation, candidates are required to complete, in addition to the appropriate freshman and sophomore work, a minimum of 60 semester hours during the junior and senior years, as set forth in one of the following curricula.

EXAMINATIONS FOR WAIVING CURRICULUM REQUIREMENTS

A required course may be waived by the satisfactory passing of a waiver examination authorized and prescribed by the department or curriculum adviser concerned. Passing this examination does not entitle the student to any hours of credit toward the degree. Request to take the examination should be made to the curriculum adviser and the required fee paid at the Office of the Cashier before the date set for the examination.

Bachelor of Arts in Government

INTERNATIONAL AFFAIRS

For the first two years of the International Affairs curriculum, see *Columbian College of Arts and Sciences*, page 74.

REQUIRED—JUNIOR AND SENIOR YEARS

The International Affairs program covers international political relations, international trade and finance, international communications, and regional studies. Its purpose is to equip students, by providing general background and specialized work, for careers in the field of American foreign relations. The diplomatic service of the United States, the several agencies of government with responsibilities in the international field, the international organizations, and American enterprise abroad offer opportunities in this field.

	Semester Hours
Econ 181-82 International Economics	6
Hist 181-82 Diplomatic History of the United States.....	6
Pol Sc 171 International Politics	
or Hist 150 European Diplomatic History since 1878.....	3
Pol Sc 181-82 Survey of Public International Law and Organization (Formerly International Law).....	6

	Semester Hours
Pol Sc 197 .....Proseminar in International Affairs; Strategies of Contemporary American Foreign Policy.....	3
Foreign Language .....Composition and Conversation	6
Geography.....	3
Group Option .....(To be selected from one of the following groups in consultation with adviser).....	15
Elective	12
Total.....	60

All International Affairs majors must complete the *required* courses listed above, plus the group option. Group option courses must be selected after consultation with the adviser. Normally no more than 6 semester hours may be taken in an option other than the one selected. Consent of the adviser must be obtained for such modification of the option selected.

Group I—International Politics: Composed of courses in political science, history, and geography concerned with the study of American diplomatic relations.

Group II—International Economics: Composed of courses in economics, business administration, geography, and statistics concerned with the study of American economic, financial, and business relationships with foreign countries.

Group III—International Communications: Composed of courses in political science, psychology, sociology and anthropology, and journalism concerned with the study of international information programs, public opinion, psychological warfare, cultural relations, and public relations. (It is recommended that the student include statistics in his freshman- and sophomore-year program.)

Group IV—Area or Regional Studies: Composed of courses in economics, history, political science, and geography. Integrated programs of study are available in the following regions or areas: Europe; Africa and the Middle East; Asia and the Pacific Area; the Soviet Orbit; and Latin America. Modifications and combinations of these areas may be made if approved by the adviser. The foreign language requirement should be met by a language suitable for study of the region or area selected.

PUBLIC AFFAIRS

For the first two years of the Public Affairs curriculum, see Columbian College of Arts and Sciences, page 74.

REQUIRED—JUNIOR AND SENIOR YEARS

The Public Affairs program is a composite curriculum dealing with domestic government and policy.

	Semester Hours
Econ 102 .....Economic Analysis	3
Econ 121 .....Money and Banking	6
Econ 161-62 .....Public Finance and Taxation.....	6
Hist 175-76 .....Political and Constitutional History of the United States.....	6
Pol Sc 121-22 .....The Constitution of the United States.....	3
Pol Sc 145 .....Political Parties and Politics.....	6
Pol Sc 151-52 .....Public Administration	6
Group Option .....(To be selected from one of the following groups in consultation with the adviser).....	12
Elective	15
Total.....	60

All Public Affairs majors must complete the *required* courses listed above. The group options provide specialization. Modifications and substitutions may be made when appropriate or necessary provided the consent of the adviser is obtained.

Group I—Economics Option

	Semester Hours
Econ 101 Economic Analysis	3
Econ 104 History of Economic Thought.....	3
Econ 105 Business Cycles	3
Econ 165 Government Control of Economic Activity.....	3
Total.....	12

Group II—Politics Option

	Semester Hours
Pol Sc 104 State and Local Governments.....	3
Pol Sc 111 Introduction to Comparative Government and Politics.....	3
Pol Sc 120 Foundations of American Democracy.....	3
Pol Sc 146 Political Pressures and Public Reactions.....	3
Total.....	12

Bachelor of Business Administration

ACCOUNTING

For the first two years of the Accounting curriculum, see *Columbian College of Arts and Sciences*, page 73.

Programs are offered in three areas of professional specialization: (1) Managerial Accounting in Business; (2) Federal Financial Management—Accounting and Budgeting; and (3) Public Accounting.

REQUIRED—JUNIOR AND SENIOR YEARS

	Semester Hours
Acct 101 Cost Accounting	3
Acct 121 22 Intermediate Accounting	6
Acct 161 Income Tax Accounting.....	3
Acct 171 Auditing	3
BA 102 Fundamentals of Management.....	3
BA 131 Business Finance	3
BA 161 Commercial Law: Contracts, Sales, Agency, and Bailments.....	3
BA 162 Commercial Law: Negotiable Instruments, Property, Mortgages	3
Econ 121 Money and Banking.....	3
Area of Professional Specialization.....	30
Elective	15
(Exclusive of Accounting courses, not more than 6 hours may be taken in a single department).....	15
Total.....	60

All Accounting majors must complete the *required* courses listed above, plus one of the following areas of professional specialization. Special programs and elective courses may be arranged in consultation with the Department of Government and Business.

Group I—Managerial Accounting in Business: Students preparing for careers in managerial accounting in business may specialize in a particular area of accounting, such as cost, budgeting, or income tax, or preferably, may concentrate on broadening their backgrounds in business administration or in more general fields of knowledge. The Managerial Accounting in Business Program thus provides maximum flexibility for students who wish to combine basic training in accounting with other career interests, either in preparation for general business responsibilities or in preparation for a more specific career in the financial management field.

Courses relating to Managerial Accounting selected with the approval of the adviser (may not include Accounting courses in excess of 9 hours) 15

Group II—Federal Financial Management—Accounting and Budgeting: Students preparing for careers in financial management in the Federal Government may combine basic professional training in accounting with more specialized training in the financial management techniques used in administering the complex affairs of modern-day government. A flexible program can be developed in keeping with the specific career objectives of the individual student by the careful selection of electives.

Courses relating to Federal Financial Management to be selected with approval of the adviser (may not include Accounting courses in excess of 9 hours) 15

Group III—Public Accounting: The Public Accounting Program is a concentrated professional curriculum designed to prepare students for careers in public accounting and the Certified Public Accountants examination. It combines the maximum number of professional accounting courses consistent with the broad educational background essential to successful Accounting careers in the modern business world.

Courses relating to Public Accounting to be selected with approval of the adviser 15

BUSINESS ADMINISTRATION

For the first two years of the Business Administration curriculum, see Columbian College of Arts and Sciences, page 73.

The program in Business Administration is designed to provide the broad foundation required for eventual top leadership in either governmental or business administration. The following 30 semester hours are normally required. In addition students take 15 semester hours in one of the group options and 15 hours of electives, which normally are advanced courses in liberal arts subjects.

REQUIRED—JUNIOR AND SENIOR YEARS

	Semester Hours
BA 101 Introduction to Business	3
BA 102 Fundamentals of Management	3
BA 105 Personnel Management	3
BA 131 Business Finance	3
BA 141 Basic Marketing Management	3
BA 161 Commercial Law: Contracts, Sales, Agency, and Bailments	3
BA 162 Commercial Law: Negotiable Instruments, Property, Mort- gages	3
BA 198 Case Problems in Management	3
Acct 193 Business Budgeting	3

	Semester Hours
Econ 121 Money and Banking	3
Group Option (to be selected from one of the following groups)	30
Elective (to be selected in consultation with the adviser)	15
Total	15
	60

Foreign Commerce. Business Administration majors who wish to specialize in foreign commerce may request a modification of the above requirements. The modified major excludes some of the above required courses and adds others, such as a third year of foreign language, foreign markets, exporting and importing, economic geography, and other courses relating to overseas trade. Each program must be approved by the adviser.

All Business Administration majors, except those in foreign commerce, must complete the required courses listed above, plus the group option. Selection of group option courses must be made in consultation with the adviser. Normally no more than 6 semester hours may be taken in an option other than the one selected. Consent of the adviser must be obtained if the student wishes such modification of his option group.

GROUP OPTIONS

Nine areas of specialization are open to Business Administration majors. The 15 hours taken in each of these options require the approval of the adviser. The group option and the individual courses within the option should be selected *no later than the beginning of the second semester of the junior year.*

Group I—General Business: The following courses provide the basic academic foundation for general administrative and supervisory positions.

	Semester Hours
Acct 101 Cost Accounting	3
Acct 121 22 Intermediate Accounting	6
BA 107 Labor-Management Contracts	3
BA 109 Office Management	3
BA 113 Real Estate	3
BA 121 Risk Management	3
BA 122 Life Insurance and Estate Planning	3
BA 136 Credit Management	3
BA 138 Investments	3
BA 143 Marketing Research	3
BA 145 Sales Management	3
BA 150 Procurement and Materials Management	3
BA 171 Principles of Transportation	3
BA 175 Introduction to Foreign Trade	3
BA 181 Manufacturing Production	3
BA 191 Business Reports and Analyses	3
Econ 101 Economic Analysis	3
Econ 105 Business Cycles	3
Econ 165 Government Control of Economic Activity	3
Geog 125 Transportation Complexes	3
Geog 127 World Population and Settlement	3
Hist 174 Economic History of the United States	3
Speech 121 Group Discussion and Conference Leadership	3

Group II—Personnel Management: The following courses provide the basic academic foundation for such positions as personnel manager, employee relations manager, and employment manager in business and government service.

	Semester Hours
BA 105 Problems in Personnel Management	3
BA 107 Labor-Management Contracts	3

	Semester Hours
BA 181 Manufacturing Production	3
BA 191 Business Reports and Analyses	3
BA 193 Management Communication	3
BA 195 Controllership	3
Journ 143 Industrial Communications	3
Journ 145 Principles and Problems of Public Relations.....	3
Psych 129 Motivational Factors in Personality.....	3
Psych 131 Psychological Tests	3
Psych 144 Personnel Psychology	3
Speech 121 Group Discussion and Conference Leadership.....	3

Group III—Finance: The following courses provide the basic academic foundation for such positions as credit analyst, supervisor in a financial institution, bond cashier, trust officer, bank examiner, and similar positions in federal or international financial institutions.

	Semester Hours
Acct 111 Financial Statement Analysis.....	3
Acct 121 22 Intermediate Accounting	6
BA 113 Real Estate	3
BA 121 Risk Management	3
BA 136 Credit Management	3
BA 138 Investments	3
BA 163 Law in Relation to the Form of Business Units.....	3
BA 181 Manufacturing Production	3
Econ 101 Economic Analysis	3
Econ 105 Business Cycles	3
Econ 123 Monetary Theory and Policy.....	3
Econ 161-62 Public Finance and Taxation.....	6
Stat 111-12 Business and Economic Statistics I-II.....	6

Group IV—Marketing: The following courses provide the basic academic foundation for such positions as sales manager, circulation manager, route superintendent, product development manager, buyer, promotion manager, and purchasing agent.

	Semester Hours
BA 136 Credit Management	3
BA 142 Marketing Management Problems.....	3
BA 143 Marketing Research	3
BA 145 Sales Management	3
BA 147 Advertising	3
BA 150 Procurement and Materials Management.....	3
BA 158 Traffic Management	3
BA 171 Principles of Transportation.....	3
BA 175 Introduction to Foreign Trade	3
BA 176 Exporting and Importing	3
BA 178 International Business Operations	3
BA 181 Manufacturing Production	3
BA 191 Business Reports and Analyses	3
BA 195 Controllership	3
Econ 101 Economic Analysis	3
Econ 105 Business Cycles	3
Journ 145 Principles and Problems of Public Relations.....	3
Psych 148 Psychology of Advertising and Consumer Behavior.....	6
Stat 111-12 Business and Economic Statistics I-II.....	6

Group V—Controllership: The following courses provide the basic academic foundation for the position of controller in business and government service.

		Semester Hours
Acct 101	Cost Accounting	3
Acct 111	Financial Statement Analysis	3
Acct 121-22	Intermediate Accounting	6
Acct 181	Accounting Systems	3
Acct 191	Advanced Accounting	3
BA 109	Office Management	3
BA 113	Real Estate	3
BA 121	Risk Management	3
BA 163	Law in Relation to the Form of Business Units	3
BA 171	Principles of Transportation	3
BA 191	Business Reports and Analyses	3
BA 195	Controllorship	3
Econ 105	Business Cycles	3
Econ 165	Government Control of Economic Activity	3
Stat 111-12	Business and Economic Statistics I-II	6

Group VI—Economics: The following courses provide the basic academic foundation for such positions as financial economic analyst, industrial economic analyst, and market research analyst in business and government.

		Semester Hours
BA 171	Principles of Transportation	3
BA 172	Public Utilities	3
Econ 101-2	Economic Analysis	6
Econ 105	Business Cycles	3
Econ 141	Unionism and Collective Bargaining	3
Econ 142	Labor Economics	3
Econ 161-62	Public Finance and Taxation	6
Econ 165	Government Control of Economic Activity	3
Econ 181-82	International Economics	6
Geog 125	Transportation Complexes	3
Geog 127	World Population and Settlement	3
Stat 111-12	Business and Economic Statistics I-II	6

Group VII—Statistics: The following courses provide the basic academic foundation for such positions as financial statistician, planning statistician, industrial statistician, and rate analyst in business and government.

		Semester Hours
Stat 91	Principles of Statistical Methods	3
Stat 110	Quality Control Techniques	3
Stat 111-12	Business and Economic Statistics I-II	6
Stat 117	Analysis of Variance I	3
Stat 118	Correlation and the Chi-square Test I	3
Stat 155	Introduction to Mathematical Probability	3
Stat 157-58	Mathematical Statistics	6

Group VIII—Transportation and Traffic Management: The following courses provide the basic academic foundation for management positions in transportation firms and in the traffic departments of other types of business firms and government agencies. The program should also aid in the preparation for the examinations for membership in the American Society of Traffic and Transportation.

		Semester Hours
BA 158	Traffic Management	3
BA 171	Principles of Transportation	3
BA 172	Public Utilities	3
BA 173	Commercial Motor Transportation	3
BA 174	Commercial Air Transportation	3
BA 175	Introduction to Foreign Trade	3

	Semester Hours
Econ 101 Economic Analysis	3
Geog 125 Transportation Complexes	3
Geog 141-42 Urban Settlement	6
Hist 174 Economic History of the United States.....	3
Stat 111 Business and Economic Statistics I.....	3

Group IX—Automatic Data Processing: Open only to students with a quality-point index in excess of 3.00.

	Semester Hours
Math 15-16 Finite Mathematics I and II.....	6
BA 219 Digital Computer Programming Concepts.....	3
BA 220 Comparative Digital Computer Systems.....	3
BA 221 Application of Digital Computers.....	3

BUSINESS AND ECONOMIC STATISTICS

For the first two years of the Business and Economic Statistics curriculum, see Columbian College of Arts and Sciences, page 74.

REQUIRED—JUNIOR AND SENIOR YEARS

The undergraduate program in Business and Economic Statistics is designed as preparation for business and economic analysis, with 30 semester hours of requirements and 30 semester hours of electives from Accounting, Business Administration, Economics, and Statistics.

	Semester Hours
BA 101 Introduction to Business.....	3
BA 102 Fundamentals of Management.....	3
BA 131 Business Finance	3
or 141 Basic Marketing Management.....	3
BA 161 Commercial Law: Contracts, Sales, Agency, and Bailments	3
BA 162 Commercial Law: Negotiable Instruments, Property, Mort- gages	3
Econ 101-2 Economic Analysis	6
Econ 105 Business Cycles	3
Stat 111-12 Business and Economic Statistics I-II.....	6
Elective (A), (To be selected from Statistics).....	18
Elective (B)	12
Total.....	60

The Master's Degrees

Master of Arts in Government

Programs leading to the degree of Master of Arts in Government are offered in the following fields:

Public Administration
Public Affairs
International Affairs

Economic Policy
Business and Economic
Statistics
Personnel Administration

Master of Business Administration

Programs leading to the degree of Master of Business Administration are offered in the following fields:

Accounting

Business Administration

Health Care Administration

Personnel Administration

Master of Public Administration

Programs leading to the degree of Master of Public Administration are offered in the fields of Public Administration and Personnel Administration.

GENERAL REQUIREMENTS

A 3.00 average in the undergraduate major is normally required for admission to graduate study. Deficiency in undergraduate preparation may be satisfied by (1) taking specified undergraduate courses and maintaining a 3.00 average in such courses or (2) passing a comprehensive examination in the major field. The comprehensive examination may be taken only with the Dean's approval upon recommendation of the curriculum adviser.

Master's degrees are awarded by vote of the Faculty concerned on completion of the required course work, an acceptable thesis or the equivalent, and the passing of the comprehensive examination. An applicant whose background does not include the necessary courses or equivalent work experience must take a program longer than the minimum hours required.

In addition to any course examinations the candidate must pass a comprehensive written examination. Comprehensive examinations are scheduled two or three times a year (usually in December, April, and July), and should be taken during the last semester of course registration or shortly after the completion of the prescribed course work. The candidate must consult with his adviser, well in advance, as to the date of his examination and the definition of the subject matter fields which this examination is to cover. An oral examination on his thesis or major report may also be required.

Second-group courses (numbered 101-200) may be counted toward the Master's degree, only when registration for advanced credit has been approved at the beginning of the course by the curriculum adviser. No work counted toward a Bachelor's degree may also be counted toward a Master's degree.

All work for a Master's degree must be completed in five years, unless an extension of time is granted by the Dean.

A student who expects to continue his studies for the degree of Doctor of Philosophy (Graduate Council), Doctor of Business Administration, or Doctor of Public Administration, after receiving the Master's degree, will be assisted in planning his program so that he may qualify for admission to candidacy for the Doctorate.

No credit is granted for work done *in absentia* or without formal instruction, except for hospital residency and the thesis, which may be completed *in absentia* with the permission of the department, curriculum adviser, or committee concerned.

SCHOLARSHIP

Grades for graduate work are *F* (excellent), *S* (satisfactory), *U* (unsatisfactory), and *I* (incomplete). *CR* indicates credit. A minimum of 6 of the required semester hours of course work completed in the Master's program must be graded *E*.

A Master's candidate who has accumulated more than 6 semester hours of *U* will be automatically suspended.

REQUIRED COURSES IN ADMINISTRATION (Certain Fields)

Breadth and background in general administrative theory and practice are provided by the following courses, which are *required* of all Master's candidates in the fields of Public Administration, Business Administration, Health Care Administration, and Personnel Administration.

- BPA 201 Advanced Administrative Management (3)
- BPA 204 Quantitative Factors in Administration (3)
- BPA 207 Human Factors in Administration (3)

In addition, each student is normally required to take one of the following courses appropriate to his specific area of concentration:

- BA 297 Case Studies in Business Administration (3)
- HCA 206 Case Studies in Health Care Administration (3)
- PA 298 Case Studies in Public Administration (3)

THE THESIS

The thesis subject should be selected as early as possible so as to permit effective integration with the course work.

The subject must be approved by the professor in charge and recorded in the Office of the Dean by the date announced in the calendar. The thesis in its final form must have the approval of the professor in charge and must be presented to the Dean by the student no later than the date announced in the calendar. Printed copies of detailed regulations regarding the form and reproduction of the thesis are available in the Office of the Dean.

Payment of tuition for the thesis entitles the candidate, during the academic year of registration, to the advice and direction of the member of the Faculty under whom the thesis is to be written. In case a thesis is unfinished, an additional successive academic year is granted without further tuition payment. The student must, however, be registered in residence during this period. If the preparation of the thesis extends beyond the two-year period, the student must register and pay tuition as for a repeated course.

Master of Arts in Government

Curricula leading to the degree of Master of Arts in Government are available in the fields of Public Administration, Public Affairs, International Affairs, Economic Policy, Business and Economic Statistics, and Personnel Administration.

The programs leading to this degree require a minimum of 30 semester hours of work, including 24 hours of course work and a thesis equivalent to 6 semester hours. During recent years, most individual student programs have exceeded 30 hours, dependent upon the undergraduate major and other prerequisites.

Second-group courses (numbered 101-200) may be counted toward the Master's degree up to a maximum of 12 hours, but only when registration for advanced credit has been approved at the beginning of the course by the curriculum adviser. No work counted toward a Bachelor's degree may also be counted toward a Master's degree.

LANGUAGE REQUIREMENTS (Certain Fields)

A candidate for the degree of Master of Arts in Government with a major in Economic Policy, International Affairs, or Public Affairs must show that he has a reading knowledge (certified by the appropriate language department) of at least one modern foreign language, to be approved by the Dean. The language examination should be taken before the student begins the second 15 hours of his work. No student may take the examination more than three times.

PUBLIC ADMINISTRATION

Prerequisite: an undergraduate background in social science or business administration, or equivalent work experience.

The program, in contrast to the professional program leading to the degree of Master of Public Administration (see pages 177-78), is designed for students who wish to emphasize the academic elements of Public Administration. It is primarily for those who have not yet had work experience in managerial positions in government, but who wish to pursue a government career. It may also serve as a basis for later study toward the degree of Doctor of Philosophy (Graduate Council) in related fields. It is a suitable degree objective for students who have just completed the Bachelor's degree.

Three fields must be offered for examination: (1) administration and policy formulation in government; (2) a choice from the fields of public personnel management, financial management and budgeting in government, data processing and systems management, human factors in administration, accounting and statistics; (3) a choice from a major area of study in such academic fields as economics, geography, history, political science, psychology, and sociology.

Six semester hours in the program, Public Administration 299-300, represent the major research project and preparation of the thesis.

The course work is planned with an adviser and must include the *required* courses in administration, page 170.

PUBLIC AFFAIRS

Prerequisite: an undergraduate major in public affairs, economics, history, or political science, depending upon the field of specialization. Any course deficiency in the undergraduate Public Affairs Curriculum, as stated on pages 162-63, must be made up.

The language requirement, see above, must be satisfied.

The program in Public Affairs is offered in two fields of specialization: domestic economics and domestic politics.

Recommended for domestic economics: courses in economic development, economic policy, public finance, and national income.

Recommended for domestic politics: courses in United States social, constitutional, and political history; comparative government: political theory; legislative organization; jurisprudence; political parties; and public opinion.

INTERNATIONAL AFFAIRS

Prerequisite: the applicant's undergraduate program should include background courses corresponding to an undergraduate major in International Affairs at this University. (See pages 161-62.)

Any omissions in the applicant's former program must be made up by appropriate courses in addition to the requirements for the Master's degree.

The language requirement, page 171, must be satisfied.

The program in International Affairs is offered in five fields of specialization: international economics, international politics, international communications, regional studies, and Sino-Soviet affairs.

The listing of graduate courses for these fields of specialization is given in the departmental offerings for Economics, History, Political Science, Geography and Regional Science, Psychology, and Sociology and Anthropology.

Group I—International Economics: Graduate courses in economics (numbered over 200) in the field of international trade, the balance of payments, international financial policies, and international economic policies form the principal part of this specialization. Graduate courses in economic theory are recommended. Other courses may be included with the consent of the adviser.

Group II—International Politics: Graduate courses in political science and history (numbered over 200), in international law, international politics, international organization, diplomatic history, and American foreign policy, comprise the principal requirements for this specialization. Related courses may be added with the consent of the adviser.

Group III—International Communications: Graduate courses (numbered over 200) in political science, psychology, sociology and anthropology, and geography with 12 hours (one-half of the course work) in the fields of public opinion, international information, psychological warfare, and communications, and 12 hours (one-half of the course work) in the fields of international politics and area studies. The adviser in all cases must approve the course selections.

Group IV—Regional Studies: Graduate courses in economics, political science, history, and geography (numbered over 200) dealing with a geographic region, such as Latin America; Europe; Africa and the Middle East; Asia; the Soviet Orbit (see Institute for Sino-Soviet Studies, pages 299-303); or the Pacific Area, comprise the principal requirements. Other courses of broader scope in economics, history, and political science are recommended as part of the program. The adviser in all cases must approve and select.

Group V—Sino-Soviet Affairs: The Institute for Sino-Soviet Studies provides a program of inter-disciplinary study centered on the problems of the Sino-Soviet areas and the International Communist Movement. Graduate studies under the auspices of the Institute are available to qualified students. Courses and seminars are designed to analyze the principles and problems of International Communism and to study the policies, strategies, and tactics of the major Communist powers. (See pages 299-303.)

ECONOMIC POLICY

Prerequisite: an undergraduate major in economics or the equivalent.

The 30 hours of course work must include Economics 210, 265-66; and the thesis, Economics 299-300.

The language requirement, page 171, must be satisfied.

Recommended: courses in income and employment, national income, business cycles, monetary and fiscal policy, economic theory, and statistics. These courses and others that may be appropriate are to be selected with the consent of the adviser.

BUSINESS AND ECONOMIC STATISTICS

Prerequisite: an undergraduate major in Business and Economic Statistics, or the equivalent; such work must include a minimum of 24 semester hours of second-group courses in statistics and a minimum of 10 semester hours in second-group courses in accounting, business administration, and economics.

This program requires at least 12 semester hours of graduate courses in statistics. The remaining courses are to be selected from graduate offerings in accounting, business administration, economics, public administration, and statistics with the approval of the adviser. A thesis equivalent to 6 semester hours is required.

PERSONNEL ADMINISTRATION

The program in personnel administration leads to the degree of Master of Arts in Government, to the degree of Master of Public Administration (if elective courses are directed toward Public Administration), or to the degree of Master of Business Administration (if elective emphasis is directed toward Business Administration).

The course work must include the *required* courses in administration, page 170, and the thesis (Business Administration 299-300 or Public Administration 299-300). Each individual student program is arranged in consultation with a curriculum adviser.

Master of Business Administration

Curricula leading to the professional degree of Master of Business Administration are available in the fields of Accounting, Business Administration, Health Care Administration, and Personnel Administration.

The purpose of the programs leading to the degree of Master of Business Administration is to develop the analytical ability and perspective which will contribute to success as a responsible executive. Because of the increasingly close relationship between government and business, these programs also provide an excellent background for many government careers. In order to provide maximum flexibility, each student program is planned with an adviser.

An applicant must have a Bachelor's degree from an accredited college or university.

The degree is awarded by vote of the Faculty upon satisfactory passing of the comprehensive examination, and the submission of an acceptable thesis. The complete program consists of 60 semester hours, 54 hours of course work and 6 of thesis; and students with no previous background in business administration or accounting

are rarely advised to take the comprehensive examination before completing 54 hours of course work. Students who have an undergraduate background in either business administration or accounting, however, are encouraged to take the comprehensive examination as soon as the curriculum adviser believes they are prepared for it. A student who has completed an undergraduate major in accounting or in business administration with a good record may qualify under a minimum acceptable program of 30 hours, including the thesis. No more than 6 hours of graduate course credits can be transferred from other institutions and each transfer of credit must be approved by the Dean.

ACCOUNTING

The Master's programs in accounting are designed (1) for those who wish to pursue careers as professional accountants, (2) for those who wish to pursue careers of executive responsibility with emphasis on finance and accounting in either business or government, and (3) for those who wish to pursue careers as teachers of accounting. Programs are sufficiently flexible to meet individual student objectives; selection of courses is made in consultation with the adviser. The programs are available in three basic areas, professional accounting (preparing for C.P.A. designation), governmental accounting, and managerial accounting.

BUSINESS ADMINISTRATION

The Master of Business Administration program is designed for those who wish to pursue responsible careers as administrators in either government or business.

Individual programs are planned in consultation with the adviser to fit the professional objectives of the student. The course work must include the required courses in administration, page 170. Fields of study include administrative theory and practice; personnel management; finance; foreign commerce; marketing, procurement, and production; automatic data processing; and transportation and public utilities.

HEALTH CARE ADMINISTRATION

The programs in Health Care Administration lead to the degree of Master of Business Administration with areas of concentration in the administration of short-term hospitals, long-term care facilities, and health records. The basic curriculum outlined under the field of hospital administration, below, serves all three areas of concentration. Electives appropriate to the field of concentration are selected from the special courses in long-term care administration and those in health records administration.

The Health Care Administration programs are designed to give students the opportunity of acquiring the knowledge, attitudes, and skills essential as foundations for growth into capable Health Care administrators.

Prerequisite: a Bachelor's degree from an accredited college or university is prerequisite to admission to all Health Care Administration programs. While a 3.00 (B) average in the undergraduate work is expected, in the selection of candidates considerable weight is given to personal qualifications, aptitude for the area of con-

centration selected, and practical experience. Hospital work experience is desirable but not required. Preadmission experience in a hospital is arranged on request or if otherwise indicated.

While no undergraduate major is specified, a desirable background for short-term hospitals and long-term facilities (prerequisite requirements in the field of health records administration are stated on pages 176-77) would include courses in accounting, biology, business administration, economics, psychology, sociology, and statistics. A minimum of 3 semester hours each of undergraduate accounting and statistics courses must be taken prior to admission to degree candidacy. Applicants with academic deficiencies may be permitted to enroll as special students subject to the satisfactory completion of prescribed courses beyond the minimum requirements for admission.

Master's candidates who may wish to continue for a doctorate should plan the Master's program accordingly, in consultation with their advisers.

In addition to the degree programs in Health Care Administration, special courses are offered which are concerned with health care associations, planning agencies, consulting firms, and insurance plans.

HOSPITAL ADMINISTRATION

The program in hospital administration is divided into two phases. During the first phase the student must satisfactorily complete 36 semester hours of course work, selected in accordance with his background needs. These courses cover the general and technical background of hospital administration, general administrative theory and practice, and problem solving in the area of management as it relates to short-term hospitals. The second phase is a calendar-year residency of on-the-job institutional training under qualified supervision, which carries 9 semester hours of credit. A written major report is required as a part of phase two. Selected students take an additional full year of residency, for which they receive 9 hours of credit.

Full-time students should complete the degree program in twenty-two months; part-time students in thirty-six months. Under special circumstances, additional time may be granted. No student is admitted who does not intend to complete the program.

With special permission, additional research and course work may be substituted for a part of the clinical training. Because each program is designed for the individual student, it is possible that a student may be required to complete two years of academic work and only three months of residency.

CURRICULUM

The following curriculum is required of Master's candidates in all fields of Health Care Administration:

	Semester Hours
BPA 201 Advanced Administrative Management.....	3
BPA 204 Quantitative Factors in Administration.....	3
BPA 207 Human Factors in Administration.....	3
HCA 202 Introduction to Health Care Administration.....	3

* When appropriate, hospital administration students may take Psychology 245, Seminar: Employee Motivation and Morale, and/or omit BPA 207 if content is included in other course requirements.

	Semester Hours
HCA 203 Organization and Management.....	3
HCA 206 Case Studies in Health Care Administration.....	3
HCA 209 Health Care Economics.....	3
HCA 212 Planning and Constructing Health Care Facilities.....	3
*HCA 293-94-95 Residency I	9
Elective (With approval of the adviser).....	12
Total.....	45

ADMINISTRATION OF LONG-TERM FACILITIES

Master's candidates electing a concentration in the administration of long-term care facilities, such as chronic disease hospitals, nursing homes, facilities for the aged, and mental hospitals, have the same admission requirements as students in the hospital administration field and follow the curriculum outlined above to satisfy the 36 semester hour requirement of the first phase of the degree program. With the approval of an adviser, electives are selected from the following courses, in accordance with the special interest of the candidate:

	Semester Hours
HCA 250 Administration for Mental Care.....	3
HCA 260 Administration for Long-term Care Facilities.....	3
HCA 261 Business Procedures in Long-term Care Facilities.....	3
HCA 265 66 Readings in Long-term Care Administration.....	6
HCA 267 Social Gerontology for the Administrator.....	3

The second phase of the program consists of a calendar year of residency in one or more facilities for long-term care, for which the student receives 9 semester hours of credit. During the residency year the candidate must write a major report.

HEALTH RECORDS ADMINISTRATION

Students electing this concentration may terminate their study with the completion of the first phase, at which time a certificate is awarded, or they may complete the requirements for the Master's degree.

The first phase consists of the following 36 semester-hour curriculum and an internship of approximately four months.

	Semester Hours
BA 211 Personnel Management and Industrial Relations.....	3
BA 218 Survey of Data Processing.....	3
HCA 203 Organization and Management.....	3
HCA 205 Hospital Management Procedures.....	3
HCA 221 23 Fundamentals of Medical Science and Medical Terminology.....	6
HCA 225-26 Principles of Health Records and Problems in Medical Records Administration	6
HCA 229 Health Records Administration Internship.....	3
Stat 120 Principles of Statistical Analysis.....	3
Elective (With approval of the adviser).....	3

The second phase consists of additional prescribed course work (approximately one semester of full-time study) and a period of residency suitable to meet the re-

* The student must register for 3 semester hours of residence at the end of the first phase and before leaving the University for the residency hospital. Registration for 1965 will be held May 27, 1965.

quirements for the Master's degree and a written report on a major work project.

Prerequisite: a Bachelor's degree from an accredited college or university is required, including 6 semester hours in human anatomy and physiology. A broad liberal arts background is preferred, including courses in such fields as anatomy, biology, business administration, history, logic, physiology, and sociology.

PERSONNEL ADMINISTRATION

The field of Personnel Administration is described on page 173 and may lead to the degree of Master of Arts in Government, Master of Business Administration, or Master of Public Administration.

Master of Public Administration

This program provides a course of study appropriate for those students currently in government or with appreciable past experience in government. This is a professional degree, preparing graduates for positions of higher responsibility in the public service and generally improving their competence in public employment. Work done for this degree may lead directly toward the degree of Doctor of Public Administration. Applicants must have a Bachelor's degree from an accredited college or university.

The degree is awarded by vote of the Faculty upon satisfactory passing of the comprehensive examination, and the submission of an acceptable thesis. The program consists of 60 semester hours, 54 hours of course work and 6 of thesis. Students with a limited background in public administration, political science, or a closely related social science are rarely advised to take the comprehensive examination before completing 54 hours of course work. However, students who have undergraduate backgrounds in political science, history, economics, sociology, or psychology, or appropriate career experience are encouraged to take the comprehensive examination as soon as the curriculum adviser believes they are prepared for it. The minimum acceptable program is 30 hours. Students who have completed the Public Affairs undergraduate major at The George Washington University, or its equivalent, with good records, may complete the requirements for the degree of Master of Public Administration within a 30-hour minimum, including the thesis. No more than 6 hours of graduate credit can be transferred from other institutions; and each transfer of credit must be approved by the Dean.

The course work for the Master of Public Administration degree must include the required courses in administration, page 170. Other courses, selected with the approval of the adviser, should be concerned with selected fields of administration in government and related social and economic studies. The thesis, which may be a major case study, is prepared under the guidance of an appointed adviser. Candidates are required to offer the field of administrative theory and practice.

In addition, students select, in consultation with an adviser, two fields from the following: administration in the Federal Government, international public administration, public personnel management, public financial management and budgeting, human factors in administration, business-government relations, metropolitan administration and urban affairs, data processing and systems management. Fields of study may also be selected from closely related social sciences.

Doctoral Study

Work for the degrees of Doctor of Business Administration and Doctor of Public Administration is under the supervision of the Committee on Doctoral Studies.

An applicant must have the degree of Master of Business Administration or Master of Public Administration, as appropriate; Master of Arts in an approved field; or the equivalent, together with acceptable personal qualities and a capacity for creative scholarship. Each applicant must demonstrate his competence by qualifying examinations in two tools of research, chosen as the individual program dictates from the following: statistical methodology, accounting, reading and English translation ability in a modern foreign language, research methodology in the social sciences, research methodology in the engineering and physical sciences, and cartography. Other tool subjects may be substituted in accordance with the needs of individual programs.

The Committee on Doctoral Studies, in consultation with the applicant, will (1) designate six fields of study selected from such areas as Business Administration, Economics, Health Care Administration, International Affairs, Public Administration, Public Affairs and Political Science, and (2) appoint an adviser to guide the student in his work in these fields. Most students will complete 30 semester hours in graduate courses and such additional course work as may be prescribed by the adviser; but each program is individually arranged in light of the student's background.

When the applicant has satisfied his adviser and the Committee of his readiness to take the General Examination in the fields of study previously designated, the examination will be scheduled during the following January or May.

Upon successful completion of the General Examination and approval of the subject of the doctoral dissertation, the student may be admitted to candidacy by the Committee on Doctoral Studies. The candidate's research and the preparation of his dissertation are supervised by a Research Adviser designated by the Committee.

THE DISSERTATION

No later than the date specified in the University calendar the candidate must submit to the Dean three complete copies of the dissertation (including a summary which is to be inserted as an appendix) together with a fourth copy of the summary and a copy of the abstract for inclusion in the announcement of the examination. It is the responsibility of the candidate for a Doctoral degree to obtain from the Dean

a printed copy of the regulations governing the styling and reproduction of the dissertation, which are rigidly enforced. The summaries of accepted dissertations will be printed in a numbered issue of the *UNIVERSITY BULLETIN*. The successful candidate for the doctorate is required, before receiving his degree, to pay a fee to cover the expense of printing the summary of his dissertation. Accepted dissertations, with accompanying drawings, become the property of the University and are deposited in the University Library, where the duplicate copies are bound and made available for circulation. Permission to publish or adapt material in them must be secured from the Dean.

THE FINAL EXAMINATION

The Final Examination of the candidate consists of his oral defense of the dissertation. The examination will be given by a committee appointed by the Committee on Doctoral Studies. Upon successful completion of this oral examination the candidate will be approved for the degree of Doctor of Business Administration or Doctor of Public Administration by the Committee on Doctoral Studies.

RESIDENCE AND CONTINUOUS REGISTRATION

The Committee on Doctoral Studies expects all students to work on their doctoral programs in residence, although there is no formal regulation concerning the minimum amount of time of resident study either in preparation for the General Examination or as a doctoral candidate engaged in doctoral research. The student who undertakes either part of the doctoral program on full or limited schedule must, in accordance with University regulations, maintain continuous registration under the School of Government, Business, and International Affairs even when he is granted a leave of absence for study or residence elsewhere. Failure to maintain registration in each semester of the academic year disrupts the residence status of the student. In such case, the student must reapply for admission to the School, under whatever new conditions and regulations are set up by the Committee or the member of the Faculty who directs his research. The student who has completed his tuition requirements, but whose graduation is deferred for any reason, must maintain "in residence" status by paying the residence fee for the semester immediately preceding the graduation at which he expects to receive his degree.

The degree of Doctor of Philosophy in the field of International Relations is offered in the Graduate Council of the University. The Doctoral program in this field includes work in economics, history, and political science. Students working towards the degree of Doctor of Philosophy in the fields of Political Science, History, and Economics can arrange concentrations in various aspects of international affairs. Requirements for the degree of Doctor of Philosophy are stated on pages 87-95.

Special Programs

The Government Management Intern Scholarship Program offers annually fifty scholarships to assist federal agencies in training carefully selected young men and women for administrative leadership in government career service. Each scholarship provides a tuition-free course of 3 hours a semester and appropriate academic credit (up to 6 semester hours) for the successful completion of training assignments required in any agency whose training program has been approved for this purpose by the University.

The Navy Graduate Financial Management Program, sponsored by the Naval Postgraduate School, provides 50 semester hours of work in financial management and related fields for a selected group of Naval and Marine officers. The Master of Business Administration degree is awarded upon successful completion of this full-year program.

The Air Force Advanced Management Program, sponsored by the United States Air Force Institute of Technology, provides 50 semester hours of work in advanced management and supporting fields for a selected group of Air Force officers. Most of the officers receive the Master of Business Administration degree upon successful completion of this full-year program.

The School of Government, Business, and International Affairs cooperates with the College of General Studies in the Off-Campus programs of that College, particularly in the fields of accounting, business administration, financial management, governmental administration, international affairs, and personnel administration. Special Master's degree programs have been established by the College of General Studies in cooperation with the School of Government, Business, and International Affairs for the students and faculty of the Army War College, Carlisle Barracks, Pennsylvania; the Air War College and the Command and Staff College, Air University, Maxwell Air Force Base, Alabama; the Industrial College of the Armed Forces and the National War College, Fort McNair, Washington, D. C.; and the Naval War College, Newport, Rhode Island. These programs lead to the degrees of Master of Arts in International Affairs, Master of Science in Business Administration, Master of Science in International Affairs, and Master of Science in Public Administration.

Center for Behavioral Sciences

The Center, administratively related to the School of Government, Business, and International Affairs, was established as an inter-departmental and inter-disciplinary organization for encouraging behavioral science research, projects, and programs. Projects are sponsored and financed by foundations, governmental agencies, private organizations, and individuals.

A Faculty Executive Committee gives University supervision, and a nation-wide Advisory Board provides policy recommendations for long-range planning. Faculty members and students participate in the research activities of the Center for the Behavioral Sciences.

Results of research studies and related projects are reported through a publication program of the Center. A two-week Laboratory utilizing sensitivity training is sponsored annually by the Center and the College of General Studies in cooperation with the National Training Laboratories of the National Education Association.

The Management Research Group

The Management Research Group seeks to serve government and industry and commerce by contributing to the development and understanding of basic theory in the field of management. The Group also provides assistance in translating theory into practice.

Relationships and techniques important to modern information flow and managerial decision-making are stressed. The research conducted extends to system design, analysis of system performance, and the evaluation of practice in relation to managerial criteria.

Institute for Sino-Soviet Studies

GRADUATE STUDY AND RESEARCH IN COMMUNIST AFFAIRS

The Institute for Sino-Soviet Studies provides a program of inter-disciplinary study centered on the problems of the International Communist Movement and the Sino-Soviet areas. The Institute also conducts integrated research on the historical, ideological, political, economic, sociological, psychological, anthropological, geographic, legal, and military aspects of Communism and Communist political systems, as manifested in the Soviet Union, Red China, and the other components of the Communist orbit.

Graduate study under the auspices of the Institute is available to qualified students who wish to focus on Sino-Soviet Affairs. Courses in the history, political science, geography, economics, and military strategy of the Soviet Union, Communist China, and other Communist countries are offered regularly.

The Institute also offers specialized courses based on research in progress, contemporary events, and international pressures. They are open on a credit or non-

credit basis to students whose backgrounds fit them for participation. Appropriate specialization, geographic and otherwise, building upon an integrated background in the Sino-Soviet field, is encouraged in curriculum planning.

The graduate courses and seminars provide an opportunity for the analysis of the principles and problems of International Communism and the study of the policies, strategies, and tactics of the Communist powers. This combined approach is necessary for an understanding of the past, present, and future of the Communist Movement, and for a demonstration of how Communism affects the attitudes and policies of Communist countries. It is hoped that through the use of a multi-disciplinary approach students will understand more fully the nature of the protracted conflict which confronts the free world.

Students may undertake work toward a Master's or Doctoral degree in International Affairs with emphasis on Sino-Soviet Affairs.

Qualified graduate participation in the research program is encouraged, especially for Doctor of Philosophy candidates.

A special brochure describing in more detail the work of the Institute is available on request.

The College of General Studies*

C. L. Angel, *Dean*; R. W. Eller, *Assistant Dean (Special Projects)*; J. G. Brown, *Assistant Dean (Administration)*; R. B. Simons, *Assistant Dean (Academic Affairs)*; Mary Coleman, *Director, Reading Center*; C. E. Galbreath, *Coordinator, Programs for the War Colleges*; *Coordinator, National War College Center, Fort McNair, and War College Programs at the Pentagon*; J. L. B. Atkinson, *Coordinator, Air University Center, Maxwell Air Force Base, Ala.*; W. L. Tayler, *Coordinator, J. K. McDonald, Assistant Coordinator, Arms War College Center, Carlisle Barracks, Pa.*; H. M. Stout, *Coordinator (to June 1, 1964), Naval War College Center, Newport, R. I.*; Murdock Head, *Director, Center for Conferences and Institutes, Airlie House, Warrenton, Va.*

STAFF OF INSTRUCTION†

SEPTEMBER 1962–AUGUST 1963

Professors J. G. Allee, Jr., G. L. Angel, J. L. B. Atkinson, J. W. Brewer, H. F. Bright, W. G. Clubb, J. H. Coberly, J. C. Dockeray, R. B. Eastin, J. O. Eaton, C. E. Galbreath, C. F. Henigan, Jr., Waring Hopkins, G. E. McSpadden, Florence Mears, J. W. Skinner, R. W. Stephens, H. M. Stout, W. L. Tayler, Kathryn Towne

Professorial Lecturers S. R. Abrahamson, J. L. Angel, Charles Berns, R. G. Brown, J. L. Buckler, C. W. Clewlow, R. W. Daly, G. C. Dildine, Eric Fischer, J. R. Fredland, R. F. Futrell, C. E. Goode, E. W. Gunberg, Alex Hawryluk, W. G. Held, Frank Higganbotham, H. F. Hubbard, W. W. Jeffries, D. D. Johnson, C. D. Kepner, Tom Kouzes, J. L. Krieger, J. C. Lang, J. T. Lowe, E. J. Mahoney, R. C. Maize, Edward McCrensky, E. H. Miller, Victor Petrov, P. C. Phillips, Richard Powers, J. R. Probert, Ralph Purcell, C. L. Quattmeyer, R. C. Roberts, Jr., O. P. South, K. D. Steers, J. C. Stephens, Ruth Tiedeman, Arthur Uscher, W. A. Vogely, K. R. Whiting, C. P. Wolle

Associate Professors R. E. Baker, Lee Bielski, J. G. Brown, J. M. Campbell, Mary Coleman, John Coughlan, R. S. Jordan, Virginia Kirkbride, F. C. Kurtz, H. R. Ludden, G. E. Mazzeo, W. A. McCauley, Muriel McClanahan, C. Y. Meade, Leonard Prestwich, L. E. Schlesinger (*Research*), Mildred Shott, George Stambuk

* This listing of Administrative Officers is for 1963–64.
† Rank shown as of September 1, 1963.

Associate Professorial Lecturers R. J. Alexander, W. E. Amos, L. J. Ashley, C. L. Berg, J. J. Boyne, R. A. Bradley, K. H. Bradt, M. J. Brennan, Jr., W. W. Brownholtz, W. D. Butts, F. A. Cartier, Jr., Gordon Christenson, P. E. Coletta, J. G. Colmen, Beverly Crump, A. F. Czajkowski, George DeGennaro, O. C. Disler, C. W. Edwards, Jr., Seneca Eldredge, W. J. Elsen, H. L. Felchlin, J. A. Fraser, N. T. Frazer, Jane Greene, H. M. Henkin, T. S. Jones, A. D. Kirsch, Dimitrios Kousoulas, R. A. Leestma, C. J. Lindley, C. V. Manes, Albert Maslow, J. V. Milano, E. G. Misy, Helen Mitchell, W. A. Mitchell, B. H. Patterson, Jr., R. H. Pennington, W. T. Perkins, William Perl, Ross Pollock, E. E. Pontius, Jr., L. B. Pouliot, W. C. Rein, Mary Rose, Fern Schneider, Mary Scott, C. A. Smith, K. M. Sowers, F. J. Sullivan, L. C. Taynton, J. S. Thomson, J. A. Tierney, E. A. Turpin, Jr., J. H. White, Charles Zellers

Assistant Professors J. G. Boswell, R. W. Eller, D. M. Faulkner, P. F. Gallagher, P. P. Hill, S. J. Hunter, A. D. Larson, J. K. McDonald, Vadim Medish, G. A. Olkhovsky, L. C. Smith, Klaus Thoenelt

Lecturers H. D. Arnett, J. A. Baclawski, W. J. Baxley, Jr., J. J. Bean, R. G. Beers, R. F. Boldt, James Borreson, J. F. Bradshaw, J. F. Brandenburg, C. J. Braun, Jr., C. E. Brett, Leon Burnham, R. L. Burns, W. L. Calderhead, W. F. Campbell, M. J. Cazan, R. G. Chadbourne, R. A. Cliffe, R. L. Cohen, C. A. Cole, Edwin Deekard, R. E. Deighton, W. H. Diment, T. A. Durck, S. J. Fanning, S. A. Fine, J. J. Finley, G. L. Fitchett, H. W. Forbes, R. J. Foster, W. A. Foster, Jr., S. L. Freud, A. H. Furnia, W. T. Gehrke, R. M. Gelman, David Gold, W. M. Goldenzweig, Sidney Goldstein, D. C. Goodrich, H. L. Grigsby, Catherine Guisler, Gilda Haber, M. C. Hamby, R. M. Harper, A. C. Harris, J. V. Harvester, J. S. Herrick, T. D. Hess, Carol Hills, J. S. Hurley, Karl Itkin, J. L. Jackson, R. F. Jaracke, W. O. Jewell, J. F. Kelly, R. L. Knox, H. C. Krebs, R. F. Laney, Jr., G. L. LaRoche, P. W. Leach, C. C. Leneten, Jr., D. M. Lewin, R. B. Lewis, J. F. Lieblich, Joseph Lima, Marcel Lind, M. S. Livingston, T. D. Longino, Margot Louria, W. A. Lovett, R. A. Lucas, H. S. Lum, A. J. Marek, W. E. Maloney, E. J. Mansmann, Jr., M. C. Marney, O. B. Martinson, Jr., J. L. Mastran, J. F. McCarthy, Jr., D. A. McConaughy, E. G. McGrath, F. X. McKenna, G. L. McMurtry, J. L. McNeal, C. R. McNatt, J. D. McPherson, R. F. Messenger, G. C. Meyer, B. B. Miller, J. B. Miller, W. S. Miller, Sidney Mintz, J. E. Mock, R. E. Moore, H. F. Noble, Jr., Hugh Nutini, D. E. Oppert, Morgan Organt, Hyman Orlin, C. R. Pack, Theodore Poldoroff, J. C. Pool, D. H. Pritchard, R. S. Quinn, Paul Reich, E. C. Robertson, R. M. Roth, T. H. K. Russell, Victoria Sandoz, W. J. Satneck, A. A. Schultz, H. G. Shackle, K. A. Shatts, D. W. Silkwood, K. L. Sindwani, C. P. Smith, W. R. Smith, E. C. Stewart, F. H. Stires, C. J. Stringer, Jr., M. E. Sumner, A. W. Swan, L. W. Sweeney, H. A. Sweetbaum, H. R. Tall, R. H. Tank, E. W. Tetrault, A. E. Tiemann, G. D. Tracy, T. C. Trippe, Jr., John Trott, G. E. Unger, George Ureke, Julia Reigersberg, Paul Wakefield, Marshall Waller, R. H. Walther, J. R. Watson, D. J. Weidman, William Wella, Jr., S. R. Westerlund, C. F. Willett, Robert Wolin, I. M. Wolkow, F. W. Wurzburg, B. D. Young, W. P. Young

Special Lecturers in the College of General Studies K. C. Back, Robert Belsham, Anna Butler, C. R. Chamblee, J. F. Costa, P. F. Cuniff, Josph Feith, G. M. Ferris, Jr., H. E. Frankel, J. A. Gosnell, R. M. Mains, C. H. McCall, Jr., Daniel McCarthy, R. R. Mills, Jr., W. S. Myers, J. R. Reed, H. L. Runyan, Gennaro Santangelo, Milton Schach, Orlando Stallings, Exa Tabor, D. R. Thompson, George Webster, L. E. White

Instructors G. C. Landon, F. R. Turaj

Associates N. A. Adams, W. E. Alli, S. A. Batrawi, M. D. Baumgart, Bernard Beer, N. A. Beninate, A. J. Bennett, M. L. Bertsch, S. R. Bland, R. W. Blum, D. deF. Forest, Dorothy Brewer, W. J. Brown, R. S. Brundage, Gloria Butland, G. E. Byers, Stephen Chreptak, Harrison Clark, G. L. D'Amelio, R. W. Delp, A. B. DePasquale, W. P. DeWitt, Florence DiServio, Nora Eisenbach, W. E. Elrod, Jr., J. N. Elison, J. L. Gilney, Jr., M. B. Grossman, P. D. Grub, J. L. Hancock, Alois Herrmann, J. C. Hoar, Jr., D. E. P. Johnson, Richard Keshner, T. B. Kirstein, Sidney Kissin, G. J. Kleiss, F. H. Kruck, F. C. Latham, D. H. O. Lawson, J. A. S. Lazo, S. L. LeCato, Lottie Lisle, H. A. Macintire, W. G. Madison, Mary McIntyre, R. G. McLendon, G. A. Mellander, H. N. Miles, E. C. Miller, Sam Morgenstein, Virgil Ney, J. S. Orlick, B. T. Owens, K. H. Peter, A. J. Potts, R. J. Richards, Jr., W. J. Robinson, A. C. Rose III, M. A. Schwartz, Sally Shames, Anne Shinkwin, T. A. Stanhope, R. B. Stevens, I. T. Super, G. B. Tamburillo, G. W. Taylor, W. R. Throckmorton, F. A. Verser, Jr., W. H. Ward, T. E. Wolf

COMMITTEES*

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**COMMITTEE ON UNDERGRADUATE ADMISSION AND
ADVANCED STANDING**

R. B. Simons (*Chairman*), J. C. Brown, G. F. Conner, J. W. Coughlan, R. W. Eller, R. L. Hardy, J. R. Burton (ex officio), J. Y. Ruth (ex officio)

COMMITTEE ON GRADUATE STUDIES

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AIRLIE CENTER COMMITTEE ON CONFERENCES AND INSTITUTES

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COMMITTEE ON DEVELOPMENT, CURRICULUM, AND PROGRAMS

G. L. Angel (*Chairman*), J. A. Brown, J. C. Brown, R. W. Eller, R. S. Jordan, R. B. Simons

* The Dean and Assistant Deans are members ex officio of all committees.

† The Dean of Faculties, the Dean and Assistant Deans of the College are members ex officio of the Council.

GENERAL INFORMATION

The College of General Studies was established in 1950.

The objectives of the College of General Studies are to extend the educational facilities of the University; to introduce experimental programs of study for mature students; and to provide auxiliary educational services other than formal programs of study.

In addition to degree-granting programs it also conducts institutes, conferences, and special noncredit projects.

OFF-CAMPUS STUDY

The College of General Studies works closely with personnel administrators, training officers, school officials, and others interested in developing programs of in-service training, in response to increased demands of government, education, business, and industry. Programs are also offered for service personnel who wish to work toward degrees or for professional proficiency.

TYPES OF PROGRAMS

The College offers courses in liberal arts, education, and business administration on the college or university level for which there is a sufficient demand and for which a qualified instructor can be found, regardless of whether such courses are included in the regular offering of the University. According to the subject matter and the wish of the organizing group, courses are arranged as credit courses applicable toward a degree or as noncredit courses.

PROFESSIONAL IN-SERVICE TRAINING

Special programs are offered to meet the in-service needs of special groups and others will be developed as the need arises.

CAMPUS STUDY

Off-campus degree candidates may register for campus courses approved for their programs, if these courses are not conveniently available at off-campus centers.

Service personnel who wish to study full-time at the University and who have only limited time under military orders in which to complete their programs of study may register for campus courses through the College of General Studies if they meet the following requirements. Permission of the Dean is required for concurrent enrollment in off-campus courses.

1. The applicant must be in attendance under official orders which give him a specified time in which to finish his degree requirements.
2. He must prove that the degree requirements can be completed in the time specified in his orders only by taking advantage of the advanced standing provisions of this College.
3. He must be in a position to enroll for full-time study.

By special arrangement with the Department of the Navy, naval personnel may attend the University as full-time students for a maximum of five semesters.

The Air Force Advanced Management Program, sponsored by the United States Air Force Institute of Technology, provides 50 semester hours of work in advanced management and supporting fields through the educational facilities of the School of Government, Business, and International Affairs for a selected group of Air Force officers. Those officers who qualify, by a combination of academic background and the satisfactory completion of this program can be awarded a Bachelor's degree by the College of General Studies. Officers who already hold Bachelor's degrees may take these courses for graduate credit toward the Master of Business Administration degree.

REGULATIONS

College of General Studies students enrolled in campus courses are subject to and are expected to familiarize themselves with the regulations of the University stated on pages 15-33 and 54-60.

ADMISSION

Registration in an off-campus course constitutes admission to that course only. Admission to off-campus courses does not constitute admission to degree candidacy or to campus courses of the University. Courses which carry college credit, however, may count toward a degree in any school or college of the University provided: (1) the student is accepted as a degree candidate in the school or college from which the degree is sought and (2) the course meets the requirements of the particular curriculum chosen by the student and is approved by the appropriate dean. Credits for these courses may also be transferred to other colleges or universities.

CREDIT COURSES

Registration is conducted before or at the first meeting of each class. Transcripts of previous academic work are not required. Registration is restricted to those whose qualifications indicate that they are able to complete the courses successfully.

Auditing.—With the permission of the instructor, adequately prepared students may register as "Auditors." An auditor is not required to take active part in the exercises or to take examinations. No grades will be reported, and no credit will be received. Tuition is the same as for credit courses. If a course has 15 sessions a student may, with the approval of the Dean, change from credit to audit status prior to the 10th class session. If a course has 30 sessions, a student may, with the approval of the Dean, change from credit to audit status prior to the 20th class session. A student will not be permitted to change from audit to credit status after the second class session of any course.

Concurrent Registration.—A student registered as a degree candidate in any other college or school of the University may take credit courses in the College of General Studies only by permission (granted prior to registration) of the dean of the college or school concerned. The Concurrent Registration form, available at the Office of the College of General Studies, must be filled in by the student, signed by the dean of the college or school concerned, and submitted with the registration form.

Service personnel enrolled full time for campus courses need the Dean's permission to register concurrently for off-campus courses.

NONCREDIT COURSES

Noncredit courses are open to anyone interested in enrolling. When a course is organized at the request of a particular agency or group, admission may be restricted to the students recommended by the sponsoring organization.

DEGREE CANDIDACY

Application for degree candidacy should be made only if there is a reasonable assurance that the student will be in the area long enough to complete the requirements. Credits granted by this College for service schools and correspondence courses may or may not be accepted by another institution or by other schools and colleges of this University.

The following factors are considered in determining the eligibility of an applicant:

1. The adequacy of previous academic work as preparation for the course of study contemplated, including quantity and quality of work and the standing of the institution in which it was done.
2. Results of specified tests, when prescribed by the Committee on Undergraduate Admission and Advanced Standing.
3. The aptitude of the student for the curriculum contemplated.
4. The character of the student.

The University reserves the right to refuse admission to any student who has a previous academic record of such grade as to create doubt of his ability to pursue college work successfully, or who, for any other reason, would not be an acceptable student.

In agencies and service installations where there is sufficient enrollment to permit offering the necessary range of courses, it is possible, without campus study, to earn the following degrees: Associate in Arts, Associate in Science, Associate in Secretarial Administration, Bachelor of Arts, Bachelor of Business Administration, Bachelor of Science in Cartography, and Master of Arts in the fields of Financial Management, Governmental Administration, and Personnel Management.

Special Master's degree programs have been established by the College of General Studies in cooperation with the School of Government, Business, and International Affairs for the students and faculty of the Army War College, Carlisle Barracks, Pennsylvania; the Industrial College of the Armed Forces, Fort McNair, Washington, D. C.; the National War College, Fort McNair, Washington, D. C.; Air University Center, Maxwell Air Force Base, Alabama; and the Naval War College, Newport, Rhode Island. These programs lead to the degrees of Master of Arts in International Affairs, Master of Science in Business Administration, Master of Science in International Affairs, and Master of Science in Public Administration.

METHODS OF ADMISSION

FROM SECONDARY SCHOOLS

An applicant from a secondary school may seek to qualify for admission to degree candidacy by certificate or examination. In either case, the applicant must send the high school record form, available to the Office of the Director of Admissions or at the College of General Studies, to his high school principal with the request that the

principal fill it out and mail it directly to the Office of the Director of Admissions, The George Washington University, Washington, D. C. 20006.

Consideration for admission is based upon the combined evidence of (1) an acceptable certificate of graduation, showing a minimum of fifteen "units"* from an accredited secondary school; (2) the principal's statement that the applicant is adequately prepared to undertake college work with reasonable prospect of success; (3) the results of College Entrance Examination Board scores submitted on the Scholastic Aptitude Test (for students over twenty-one years of age appropriate tests may be prescribed); and (4) course work completed with the College of General Studies prior to making application for admission. (See Special Requirements for Admission to Degree Candidacy.)

Certification by the principal that the student has satisfied all curriculum requirements of the school will be accepted in lieu of any prescribed distribution of units.

A desirable secondary school program in preparation for college would include: four years of English, at least two years of one foreign language, two years of natural or physical science with laboratory instruction (beyond "General Sciences"), two or three years of social studies (with concentration on history), one or two years of mathematics.

The College of General Studies Committee on Undergraduate Admission and Advanced Standing will consider the adequacy of the qualifications for academic success of an applicant who, because of unusual circumstances, does not present all the formal requirements stated above.

FROM HIGHER INSTITUTIONS

An applicant for advanced standing may be considered for admission upon the presentation of satisfactory credentials from an accredited institution of higher learning.

Properly certified courses taken at accredited colleges or universities may be applied toward a degree in the College of General Studies, subject to the curriculum requirements of the degree program for which admission is sought. Work of low passing grade (such as *D* or the equivalent) is not acceptable for transfer. However, a course on which a grade of *D* has been received may be used to satisfy the curriculum requirement, but may not be counted toward the total number of semester hours required for the degree.

The University reserves the right to refuse credit for transfer in whole or in part, or to allow it provisionally. Credit so given may be withdrawn for subsequent poor work.

It is the responsibility of the student to have an official transcript sent directly from each educational institution formerly attended to the Office of the Director of Admissions, The George Washington University, Washington, D. C. 20006.

If the transcript of record from a higher institution includes the record of his secondary school work, it is not necessary for the applicant to have forwarded a separate record from the principal of the secondary school.

SPECIAL REQUIREMENTS FOR ADMISSION TO DEGREE CANDIDACY

To be eligible for admission to degree candidacy the student must have satisfactorily completed 6 semester hours of approved academic work in the College of General Studies.

* A unit represents a year's study in a secondary school subject, including in the aggregate not less than 120 60-minute periods of prepared classroom work.

eral Studies. Application for degree candidacy should be filed as soon as the required 6 hours are satisfactorily completed.

Twelve semester hours of acceptable work are required of applicants whose previous college records might make admission questionable. A grade of *C* or better is required for such qualifying courses toward undergraduate degrees; for Master's candidacy an average of *B* or better is required for undergraduate prerequisite courses, *S* (satisfactory) or *E* (excellent) for graduate courses.

Students must confer with the Assistant Dean (Administration) or a Field Representative of the College of General Studies before applying for admission to degree candidacy.

ADVANCED STANDING

In addition to credit allowed in transfer from other accredited colleges or universities, see "From Higher Institutions," a maximum of 30 semester hours of advanced standing may be obtained by any combination of the following methods. For detailed information concerning advanced standing acceptable in the curriculum contemplated, see "Advanced Standing" under the degree concerned.

1. Service Schools

A maximum of 30 semester hours may be obtained on the basis of service schools satisfactorily completed, as evaluated by the American Council on Education Guide to the Evaluation of Educational Experience in the Armed Forces. Ordinarily such credits are counted as electives. No credit will be allowed for military experience as such.

2. Validating Examinations

A maximum of 30 semester hours may be obtained by validating examinations. With the approval of the Dean or the Assistant Dean (Academic Affairs) and the department concerned, permission to take such examinations is granted those who are qualified by work experience and background. Validating examinations must be completed during the first calendar year in which the student is registered as a degree candidate. The fee for each three-hour course examination is \$48.

3. Correspondence Courses

A maximum of 15 semester hours may be earned through the successful completion of correspondence courses of college level which are on the approved list of the George Washington University.

EXAMINATION FOR WAIVING CURRICULUM REQUIREMENTS

During the first full semester of degree candidacy, a student wishing to omit a required course may, with the permission of the Dean, take a waiver examination, the passing of which relieves him of the curriculum requirement and qualifies him for registration in an advanced course. Passing of the waiver examination does not entitle the student to credit toward a degree. The fee for each three-hour course examination is \$5.

INSTITUTES, CONFERENCES, AND SPECIAL PROJECTS

The College of General Studies offers a wide variety of institutes and conferences. Many of these conferences are held at Airlie House, in arrangement with the Airlie Foundation, whose facilities are situated near Warrenton, Virginia.

CONTINUING EDUCATION AND NONCREDIT PROGRAMS

The College of General Studies sponsors programs of popular credit and noncredit courses, institutes, and lectures offered both on campus and off campus.

These programs are organized to provide needed auxiliary educational services and are designed to supplement the formal educational offerings of the University.

Noncredit courses in a wide variety of subject fields may be set up at the request of any interested group. There are no entrance requirements. The length of each course is determined by the wishes of the sponsoring group and the nature of the subject to be studied.

In cooperation with Channel 9, WTOP-TV, credit and noncredit television courses and noncredit radio courses are offered.

Credit courses may be applied toward a degree in any college or school of the University provided (1) the student is accepted for degree candidacy in that school or college; (2) the courses meet the curriculum requirements of the school or college; and (3) the number of semester hours earned in the College of General Studies does not exceed the maximum allowed in transfer by the school or college concerned. Credit courses may be transferred to other colleges and universities.

SECRETARIAL STUDIES PROGRAM

The College of General Studies administers on campus a two-year secretarial studies credit program designed not only to improve skills in typewriting, shorthand, and business communications but also to broaden the students' background in liberal arts. See "Secretarial Studies" in the *Courses of Instruction*. For further information concerning this program, consult the College of General Studies.

READING CENTER

The George Washington University Reading Center offers both diagnostic and corrective work for small groups or individuals and reading improvement techniques for small classes. All courses are designed to meet particular individual needs whether on a remedial basis or for accelerated reading comprehension.

FEES

The tuition fees for off-campus credit courses and campus courses are stated in the College of General Studies separate catalogue. The tuition fees for noncredit courses are determined by the length and nature of the course.

Fees for noncredit courses and eight-week credit courses are payable in full at the first meeting of the course. The student may sign a contract at the time of each registration for installment payment of fifteen-week credit courses.

For complete information concerning the College of General Studies, see the separate catalogue which is available upon request to the College of General Studies, 706 Twentieth Street NW., Washington, D. C. 20006.

The Division of University Students^{*}

J. G. Allee, Jr., *Dean*; Elizabeth Wright, *Assistant Dean*

THE DEAN'S COUNCIL†

I. B. Hansen, Hewitt Kenyon, J. W. Skinner

GENERAL INFORMATION

INTRODUCTION

The Division of University Students was established in 1930. In this Division are registered students who wish to undertake university courses for credit either here or elsewhere or as auditors, but who are not at this time working toward degrees in this university.

REGULATIONS

Regulations concerning Admission, Registration, Fees and Finances are stated on pages 15-33; other University regulations, on pages 54-60.

PROBATION

A student must maintain a quality point index of at least 2.00, or be placed on probation. He remains on probation as long as his index is below 2.00.

SUSPENSION

A student whose index falls below 1.50 is subject to suspension.

A student suspended for poor scholarship may apply for readmission after an interval of one calendar year. A student suspended twice for poor scholarship will not be readmitted.

^{*} This listing of Administrative Officers is for 1963-64

[†] The Dean of Faculties, the Dean and the Assistant Dean of the Division are members ex officio of the Council.

TRANSFER WITHIN THE UNIVERSITY

A "University student" may be transferred, at his request, to another college or school of the University only upon complying with the regulations of the specific college or school to which he wishes to transfer. The student should familiarize himself with the regulations printed in this CATALOGUE concerning admission, residence, amount and quality of work. He should also specifically note the University regulations regarding transfers within the University on page 56, and regarding graduation requirements on pages 57-60, and observe that when a student transfers into a degree-granting school or college, to be eligible for a degree he must meet not only all the general graduation requirements, but also such special requirements as may apply in his particular curriculum.

Division of Air Science

A. E. Reiser, *Director*

MILITARY SERVICE DELAY AND AIR FORCE ROTC ADVANCED COURSE SELECTION BOARD*

W. E. Adams (*Chairman*), A. F. Nassner, C. R. Young, C. C. Smarr, L. M. Garrell
(*Recorder*)

The mission of the Air Force ROTC is to develop in selected college students, through a permanent program of instruction at designated civilian educational institutions, those qualities of leadership and other attributes essential to their progressive advancement to positions of increasing responsibility as commissioned officers in the United States Air Force.

PURPOSE AND OBJECTIVES OF AIR FORCE ROTC

To select and motivate cadets to serve as career Air Force officers in fields as specifically required by the United States Air Force.

To develop in cadets by precept, example, and participation the attributes of character, personality, and attitudes essential for leadership.

To develop in cadets an interest in, and understanding of, the Air Force mission, organization, operations, problems, and techniques.

To provide that military education and training which will give cadets a general background and sound foundation on which to build an officer career.

To select and motivate cadets for career fields as specifically required by the United States Air Force.

COURSE OF STUDY, ELIGIBILITY REQUIREMENTS, BENEFITS

The program is divided into the basic course covering the first two years and the advanced course covering the junior year, summer training unit, and senior year. For a description of Air Science courses, see pages 210-14.

Enrollment in the basic course is open to all men students who are at least 14 years of age, physically fit, of good character, and candidates for Bachelor's degrees. Women students may enroll in the basic Leadership Laboratory course. Enrollment in Leadership Laboratory satisfies the physical education requirement for both men and women.

*The President of the University, the Dean of Faculties, and the Director of the Division are members ex officio of this Board.
Selection Board is for the academic year 1963-64.

Enrollment in the advanced course is on a selective basis from among the best qualified cadets who have successfully completed the basic course. Cadets in the advanced course receive subsistence allowances from the Government totaling approximately \$500, which is exempt from income tax. During the period of summer training, cadets receive \$75 a month, food, lodging, and travel expense. Uniforms, textbooks, and training materials are provided for all Air Science courses at no expense to the cadet.

Cadet candidates for pilot training are afforded an opportunity to take 35 hours of flying instruction at government expense. Flying instruction is given at an FAA approved school and is creditable toward a private pilot's certificate.

MILITARY SERVICE DELAY

Deferment from induction under the Selective Service Act of 1951 may be granted to selected cadets within the authorized quotas.

STUDENT HONORARY MILITARY SOCIETIES

The Arnold Air Society.—A national honorary military society of qualified Air Force ROTC cadets established to further the mission, traditions, and concept of the United States Air Force as a means of national defense, to promote American citizenship, and to create a close and more rewarding relationship among the Air Force ROTC cadets. The national organization founded in 1947, was named in honor of the late General of the Air Force Henry Harley Arnold. The local squadron established in 1952, was named in honor of General Carl Spaatz (retired), the first Chief of Staff of the United States Air Force. All Air Force ROTC cadets who meet the established qualifications are eligible for election to membership. Members are authorized to wear a blue and gold aiguillette and ribbon on their cadet uniforms.

Pershing Rifles.—A national honorary military society founded in 1894 by Lieutenant (later General of the Armies) John Joseph Pershing. Its purpose is to encourage, preserve, and develop the highest ideals of the military profession, promote American citizenship, create a closer and more efficient relationship, and provide appropriate recognition of a high degree of cadet achievement. Only basic ROTC cadets are eligible for election to membership. Members are authorized to wear a blue and silver cord and ribbon on their cadet uniforms.

WOMEN'S ACTIVITIES

Angel Flight.—For women who wish to participate with the men in the Leadership Laboratory. Attractive uniforms are supplied free of charge.

National Angel Flight.—A social auxiliary of the Air Force ROTC Corps, affiliated with the Arnold Air Society. Membership is open to all female University Students.

REGULATIONS

Cadets and students in the Division of Air Science are subject to and are expected to familiarize themselves with the University regulations stated on pages 15-33 and 34-60; the regulations of the college, school, or division in which enrolled; and the regulations of the United States Air Force pertaining to Air Force ROTC cadets. Individual copies of Cadet Regulations are issued upon enrollment.

The Summer Sessions

C. W. Cole, Dean*

THE DEAN'S COUNCIL†

W. G. Clubb, R. H. Davison, W. W. Kirkpatrick, D. C. Kline, C. R. Naeser, B. S. Root

During the summer of 1964, Columbian College of Arts and Sciences; the School of Government, Business, and International Affairs; and the Division of University Students offer courses in two 5-week sessions, with some graduate seminars and courses extending over an 8-week period; the Law School and Graduate School of Public Law offer courses in two 6-week sessions and one 13-week session; and the School of Education offers courses in a 6-week session and three 3-week workshop sessions.

For a complete statement concerning summer-term work, see the Summer Sessions catalogue.

* For the academic year 1963-64.

† The Dean of Faculties and the Dean of the Summer Sessions are members ex officio of the Dean's Council.

Administrative Units

*Health Services**

University Physicians R. B. Castell (*Director*), H. L. Pugh; *University Surgeon* R. F. Dean, Jr.; *Associate University Physicians* Alfred Brigadio, Margaret Callan, R. A. Cox (*Eye*), R. F. Dyer, R. H. Harmon, H. O. House (*Nose and Throat*); *Associate University Surgeon* J. B. Harrell; *Nurse* Anne Hoffman

The Health Services Staff assists students with their medical needs by advice and treatment, by proper referral when necessary, and by cooperation with other physicians. For medical emergencies and health consultations there is, on the campus, a Student Health Clinic open from 9 A.M. to 5 P.M., Monday through Friday, during the academic year and Summer Sessions, with physician and nurse in attendance. There is also a rest room for women, with a graduate nurse in charge. For night and weekend emergencies, students may go to the emergency room of the University Hospital for treatment. The basic fee for this visit will be paid by the Health Services, and all other charges will be the responsibility of the student. This arrangement is for emergency care only.

Medical privileges include: (1) physical examination of all students who are applicants for courses in Physical Education; † (2) three visits in any one illness by a member of the Health Services Staff, office or residence (District of Columbia); (3) hospitalization, including board and nursing, in the University Hospital for not more than one week during any twelve-month period—the necessity to be determined by the Director of Health Services.‡ All additional hospital charges for operating room, anesthetics, laboratory, X-ray, medications, or any special services must be paid by the student. Expenses incurred for examinations and treatment by specialists, such as eye refraction and provision of glasses; orthopedic examinations and application of cast or other appliance; laboratory and X-ray work; and surgical operations must be paid by the student.

This medical benefit applies only to illness or disability incurred while currently enrolled in the University. It does not apply to illness or disability incurred between the last day of examinations for a semester or summer session and completion of registration for the next semester or summer session.

The student is allowed, if he so desires, to engage physicians and nurses of his own choice, but when he does so he will be responsible for the fees charged.

Rules: (1) The Director of Health Services is empowered to limit or deny the

* For the academic year 1963-64.

† A charge for a special physical examination is made by the University if a student fails to appear for a physical examination during the period set for this purpose.

‡ See rule (5) for exception.

medical benefits where, in his discretion, a student has, by his misconduct or breach of the rules of the University, made himself ineligible; (2) the Director of Health Services has authority to determine the necessity and length of hospitalization; (3) a student not currently enrolled or one who has severed his connection with the University is ineligible for medical benefits; (4) a student intending to train for an athletic team is required to pass a thorough examination at the beginning of each semester; (5) hospitalization is not available to those students availing themselves of other hospitalization coverage for the same illness.

The University is not responsible for injuries received in intercollegiate or intramural games, or in any of the activities of the physical education departments.

Veterans Education

Paul Vernon Bissell, *Director*

The personnel of the Office of the Dean of Men act as advisers to veterans and war orphans and in a liaison capacity between the University and the Veterans Administration. This Office should be consulted concerning educational benefits before applying to the Veterans Administration for certification. The Veterans Administration is on Constitution Avenue at Twentieth Street NW., Washington, D. C. 20421. Students eligible under one of the state laws should also contact this Office.

PUBLIC LAW 634 (WAR ORPHANS' EDUCATIONAL ASSISTANCE ACT)

A child of a person who died of a disease or injury incurred or aggravated while on active duty in the Armed Forces during World War I, World War II, or the Korean Conflict may be eligible for educational assistance under this Act, if certain age requirements are met. In the case of a child who has not reached the age of majority, his guardian must make application for him to the Veterans Administration.

PUBLIC LAW 190 (WORLD WAR II GI BILL EXTENSION)

The educational benefits for World War II veterans terminated July 25, 1956, except for persons eligible under special enlistment provision.

PUBLIC LAW 550 (KOREAN GI BILL)

To be eligible, a veteran must have been in service between June 27, 1950 and January 31, 1955, no longer be on active duty, and have begun his education within three years after separation. Such students have eight years from separation or January 31, 1965, whichever is earlier, to use their benefits.

Application for benefits to the Veterans Administration should be made as early as possible; V.A. approval should be presented to the veterans' adviser from the Office of the Dean of Men during the registration procedure.

PUBLIC LAWS 16, 894, AND 87-815 (VOCATIONAL REHABILITATION)

Disabled veterans desiring vocational rehabilitation under these laws should apply to the Veterans Administration for approval of their training objectives at least sixty days prior to registration.

Community and University Services

THE READING CENTER

Mary Ellen Coleman, *Director*

The Reading Center, 2013 I Street NW., offers individual diagnostic and corrective services for all levels: primary, elementary, secondary, and adult. In addition special reading improvement classes are conducted on the high school and adult level.

A complete diagnosis includes psychological tests; vision, hearing, and dominance tests; and the various reading and spelling tests. Results are interpreted and a written report is presented in conference with the parents or the individual.

The special reading classes for high school students and adults are offered throughout the year at stated intervals. Emphasis is placed on improvement of vocabulary, speed, comprehension, and study skills. Machines such as the tachistoscope, rate accelerator, and controlled reader are also used for increasing speed of comprehension.

Fees.—The fee for individual diagnosis is \$45; for individual instruction, \$6 a lesson; for semi individual instruction, \$5 a lesson; for instruction in small groups with common reading difficulties, \$3.75 a lesson (\$3.25 for students currently registered in the University). All fees are payable in advance at the Office of the Cashier.

THE SPEECH CLINIC

C. W. Pettit, *Director*

The Speech Clinic, Lisner Auditorium, 730 Twenty-first Street NW., offers diagnostic and corrective work for children and adults with such speech difficulties as stuttering, lisping, cleft palate, cerebral palsy, aphasia, foreign accent, voice, and articulatory problems.

Fees.—There is no charge for the diagnosis. The fee for individual instruction is \$7 an hour; for group instruction, \$4 an hour. Fees are payable at the Office of the Cashier.

THE TESTING AND COUNSELING CENTER

F. L. Phillips, Director

The Testing and Counseling Center, 718 Twenty-first Street NW., offers services which are available primarily to students enrolled in the University, and secondarily to high school students and to adults of the community.

The services are designed to assist individuals in the evaluation of their educational and vocational potentialities and objectives, diagnose academic difficulties, provide educational and vocational literature and information, and refer individuals to qualified agencies for assistance with problems not handled by the Center.

The Center provides special testing services including: **diagnostic tests** prescribed by the School of Engineering and Applied Science, **admissions tests** for the University and for other selected educational institutions, and **tests** for business and industry.

Fees.—For students who are currently registered as degree candidates in the University, the fee is \$10; for students currently enrolled in the University but not as degree candidates, the fee is \$40; for graduates of the University, \$40; for community clients, \$65. Fees for specialized testing are dependent upon the services involved. All fees are payable at the Office of the Center.

Student Life

RESIDENCE HALLS

Complete information concerning the University's residence halls is available at the Office of the Dean of Men or the Office of the Dean of Women, The George Washington University, Washington, D. C. 20006.

Information concerning off-campus housing near the University may be obtained at the Office of the Dean of Men. The reservation of rooms in private houses must be made by students.

Admission to the University does not include a room reservation. A separate application for a room should be made well in advance (for the fall semester by May first, for the spring semester by January first). Rooms are leased for the academic year, and a deposit of \$100, which is credited toward the fall semester room charge, is required. If notice of withdrawal or cancellation of room reservation is received prior to June 1, \$50 of the deposit will be refunded. Room rentals are payable in advance by the semester.

RESIDENCE HALL RATES FOR TWO SEMESTERS — 1964-65

	Room and Food Service	Room only
FOR MEN:		
Adams Hall		
double room	\$900	—
triple room	350	—
Crawford Hall	900	\$400
Calhoun Hall	900	420
Madison Hall (Graduate and Professional Students)	920	320
Welling Hall	820	
FOR WOMEN:		
New Residence Hall	\$950	—
Strong Hall		\$450
double room	950	535
single room	1,035	

FOOD SERVICE

Residents of the new women's Residence Hall, Crawford and Adams Hall participate in a room and food service plan. The food service is optional for the residents of Calhoun, Madison, Strong, and Welling Halls. Meals may be taken either at the new Women's Residence Hall or in the Residence Hall dining room at the

Student Union. Well-balanced meals are served cafeteria style seven days per week (20 meals). Food service payment does not cover University holidays or vacation periods.

All unmarried women students under twenty-two years of age and enrolled for twelve or more hours of academic work during the fall or spring semester or six or more hours during a summer session are required to live in the University residence halls or at home with their parents. Upon written approval of their parents and the permission of the Dean of Women, freshman women may live with immediate relatives and upperclass women may live with contemporaries of their parents. Under no circumstances may an unmarried woman student under twenty-two years of age taking a full academic program live in an apartment with her contemporaries.

All unmarried freshman men under twenty-one years of age and enrolled for twelve or more hours of academic work during the fall or spring semester or six or more hours during a summer session are required to live in the University residence halls, or at home with their parents. In exceptional cases permission to live elsewhere may be given a student by the Dean of Men.

STUDENT UNION

The Student Union, 2125 G Street NW., is the center for student life. From the cafeteria on the first floor to the reading room on the fourth floor, it is well planned to meet the students' need for meals, study, recreation, and activities. In addition to the recreation lounge and social lounge the Student Union provides office space for the Student Council and for the other major student organizations.

The Student Activities Office, also in the Student Union, has information concerning the student organizations and campus events.

HEALTH SERVICES

For details see "Health Services", pages 198-99.

RELIGIOUS LIFE

The University recognizes the contribution that religion makes to the life of its students and encourages them to participate in the various religious organizations of their own choice. Catholic, Jewish, and Protestant bodies sponsor these groups and form a link between the University and the religious community. The advisers of the religious organizations are available for counseling.

UNIVERSITY CHAPEL

The University Chapel is maintained as a nonsectarian service of worship for the University community. The service is held Wednesday of each week from 12:10 to 12:40 o'clock at 1906 H Street NW. Among the guest speakers are representative citizens of Washington. The Director of University Chapel is available for counseling and conference.

THE PLACEMENT OFFICE

The Placement Office, 2114 G Street NW., provides assistance to students and alumni seeking full-time, part-time, temporary, or permanent employment. The Office maintains a registry of positions available in many fields, both locally and nationally, and refers qualified applicants for consideration. The Office administers the On-Campus Industrial and Government Recruitment Interview Program for seniors and graduate students, in which well over 150 private companies, as well as certain government agencies, participate. This program offers outstanding employment opportunities to persons seeking career positions.

Students and alumni interested in placement are asked to register in person at the Office and to select from written descriptions of current openings positions for which they wish referral. Those interested in planning careers are invited to study the information on career fields and the brochures of business, industry, and government, which are on display in advance of campus visits by recruiting officers. The Office also provides individual counseling to students and alumni wishing career guidance.

The Placement Office is open from 9:00 A.M. to 5:00 P.M., Monday through Friday.

INTERNATIONAL HOUSE

International House, 2110 G Street NW., is the social center for students from foreign countries. A series of teas, dances, and other forms of entertainment, and the use of club rooms and lounge enable students to become acquainted and feel at home in the University.

The International Students' Society welcomes as members students from other lands as well as North American students.

The Adviser to Students from Foreign Countries, whose office is in International House, is available for advice and guidance.

STUDENT ACTIVITIES

The University maintains the offices of the Dean of Men and the Dean of Women for the guidance of students in all nonacademic phases of student life, such as student activities, social life, and housing. The deans are available for individual counseling concerning personal adjustment to university life.

STUDENT GOVERNMENT

STUDENT COUNCIL

The University believes in encouraging the development of a sense of civic responsibility in its students by delegating to them such authority in student activities as is consistent with established policy and regulations. To this end, the organization of the University includes the Student Council, which, under the guidance of the Dean of Men and Dean of Women, is responsible for the conduct of all student activities. The Student Council is elected annually by the student body.

COMMITTEE ON STUDENT LIFE

The Committee on Student Life has the power to review the acts of all student organizations, including the Student Council, and set aside acts that are contrary to established policy and regulations of the University or the Committee. This Committee is given authority to approve or disapprove the establishment of any proposed organization on campus.

ELIGIBILITY FOR STUDENT ACTIVITIES

Any student registered in the University is eligible to participate in nonathletic student activities of the University; however, a student having a scholastic average of less than 2.00 is not eligible to be:

1. A member of the Band, Dance Production groups, Erosinian Debating Society, Glee Club, Cheerleaders, Student Council, Religious Council, Panhellenic Council, Interfraternity Council, Engineers' Council, Student Life Committee, Residence Hall Councils, or any publications staff.
2. An officer, permanent committee chairman, or member of the executive board of any activity.

The rules and policies of the Southern Conference govern participation in intercollegiate athletics.

The control and administration of all student activities are outlined in a separate bulletin called "Rules and Regulations Governing Student Activities."

SPORTS

The University is a member of the Southern Conference and the National Collegiate Athletic Association. Its teams participate in intercollegiate contests in football, basketball, baseball, tennis, golf, rifle, and crew.

The University maintains a complete program of intramural sports for both men and women. The men's program is conducted by the Intramural Council. The Women's Athletic Association and Intersorority Athletic Board cooperate with the department of Physical Education in conducting the women's intramural and informal extramural sports program in tennis, hockey, basketball, canoeing, rifle, swimming, golf, bowling, and badminton.

PERFORMING ARTS

Students may participate in dance, drama, forensics, and music through the following organizations: Dance Production Groups I, II, III (Modern Dance) and Folk Dance; Erosinian Debating Society; Folk Music Society; University Players; University Glee Club; and University Orchestra. Each of these groups presents programs during the academic year.

With the cooperation of the Curator of Art, an annual student art exhibit is presented.

ANNUAL EVENTS

Colonial Program.—The Student Council sponsors a variety of programs to which all students are invited.

Recreation Program.—The Student Council and the Dance Production Groups arrange dances—square, folk, and social—at frequent intervals for all students.

Concert Program.—The Student Council sponsors a concert each semester at which well known entertainers perform.

Orchestra Series.—The University Orchestra offers a series of concerts throughout the academic year.

Homecoming.—Scheduled about the middle of the fall semester, Homecoming is the primary festive period of the school year. It includes the annual Pep Rally and homecoming show, the homecoming football game, and the homecoming dance.

Religion in Life Program.—Special emphasis is given to the place of religion in contemporary society in this program of events during the fall and spring semesters. It is sponsored by the University Chapel.

Holiday Season.—The University traditionally greets the holiday season with appropriate ceremonies including the lighting of the Christmas tree, the singing of Handel's Messiah, and the observance of a special Christmas service at the University Chapel.

May Day.—This is the traditional time for the award of honors in student activities. Mortar Board and Omicron Delta Kappa announce and present their new members.

STUDENT ORGANIZATIONS

HONOR SOCIETIES

Phi Beta Kappa.—A national honor society recognizing "outstanding intellectual capacity well employed" in the field of liberal arts and sciences. Senior and junior students who are candidates for the degree of Bachelor of Arts or Bachelor of Science in Columbian College and who have shown broad cultural interests, distinguished scholarly achievement, high character, general promise, and scholarly ideals may, to a number not exceeding 15 per cent of a class, be elected to membership by the Faculty members of the Alpha Chapter of the District of Columbia.

Sigma Xi.—A national scientific honor society, the purpose of which is to encourage original investigation in science, pure and applied. Outstanding graduate students in the sciences are eligible for full membership, and undergraduates who have shown marked ability in research may be elected to associate membership.

Aesculapian Society.—An honorary premedical fraternity.

Alpha Kappa Delta.—A national sociology society.

Alpha Lambda Delta.—A national fraternity established to encourage and reward high scholarship and attainment, membership in which is limited to those freshmen women who attain a scholastic average of at least 3.50.

- Alpha Omega Alpha.*—A national honor medical society.
- Alpha Pi Epsilon.*—A home economics fraternity.
- Arnold Air Society.*—A national Air Force ROTC society for advanced cadets.
- Delphi.*—An intersorority society.
- Delta Sigma Rho-Tau Kappa Alpha.*—A national forensic society.
- Gate and Key.*—An intrafraternity society.
- Iota Sigma Pi.*—A national chemical society for women.
- Howard Kane-A.F.A. King Obstetrical Society.*—The fifteen students in the third and fourth year classes who maintain the highest grades in their work in obstetrics and gynecology are eligible for membership.
- Mortar Board.*—A national society for senior college women, stressing leadership, scholarship, and service.
- National Angel Flight.*—A national honorary society established to further the ideals of the aerospace age.
- Omicron Delta Kappa.*—A national fraternity emphasizing leadership in extracurricular activities.
- Order of Scarlet.*—A service honorary society for sophomore and junior men.
- Order of the Coif.*—A national legal society, the purpose of which is to foster a spirit of careful study and to mark in a fitting manner those who have attained a high grade of scholarship. Members are elected each year from the highest 10 per cent of the graduating class of the Law School.
- Pershing Rifles.*—A national Air Force ROTC society for basic cadets.
- Phi Epsilon Phi.*—A national botany fraternity.
- Phi Eta Sigma.*—A national fraternity, established to encourage and reward high scholarship and attainment, membership in which is limited to those freshman men who attain a scholastic average of at least 3.50.
- Phi Sigma Tau.*—A national philosophy honor society.
- Pi Delta Epsilon.*—A national collegiate journalism fraternity.
- Pi Epsilon Delta.*—A national drama honorary fraternity.
- Pi Gamma Mu.*—A national social-science society.
- Psi Chi.*—A national psychology fraternity.
- Sigma Alpha Eta.*—A national speech and hearing fraternity.
- Sigma Delta Pi.*—A national Spanish honor society.
- Sigma Pi Sigma.*—A national physics fraternity.
- Sigma Tau.*—A national engineering fraternity, the purpose of which is to recognize scholarship and professional attainment.
- Smith-Reed-Russell Society.*—A scholastic society in the School of Medicine. Students of the third and fourth years who maintain a quantity point index of 3.30 or higher are eligible for associate membership.
- Tassels.*—A service honorary society for sophomore women.
- Tau Beta Pi.*—A national engineering honorary fraternity.
- William Beaumont Medical Society.*—A society founded with the object of encouraging and stimulating medical students in work of individual investigation.

PROFESSIONAL ORGANIZATIONS

Alpha Chi Sigma (chemistry), Alpha Kappa Psi (commerce and economics), American Medical Association (student branch), American Medical Women's Association (student branch), American Society of Civil Engineers (student chapter), American Society of Mechanical Engineers (student chapter), Association for Hospital Administration, Delta Theta Phi (law), Institute of Electrical and Electronic Engineers (student chapter), Kappa Beta Pi (law), Student National Education Association, Nu Sigma Nu (medicine), Phi Alpha Delta (law), Phi Chi (medicine), Phi Delta Delta (law), Phi Delta Epsilon (medicine), Phi Delta Gamma (graduate), Phi Delta Kappa (education), Phi Delta Phi (law), Pi Lambda Theta (education), Society for the Advancement of Management, Theta Tau (engineering).

SOCIAL FRATERNITIES

Sigma Chi, Kappa Sigma, Phi Sigma Kappa, Sigma Alpha Epsilon, Sigma Phi Epsilon, Phi Sigma Delta, Sigma Nu, Tau Kappa Epsilon, Pi Kappa Alpha, Tau Epsilon Phi, Alpha Epsilon Pi, Delta Tau Delta.

SOCIAL SORORITIES

Pi Beta Phi, Chi Omega, Sigma Kappa, Alpha Delta Pi, Delta Zeta, Kappa Delta, Phi Sigma Sigma, Zeta Tau Alpha, Kappa Kappa Gamma, Delta Gamma, Kappa Alpha Theta, Alpha Epsilon Phi, Sigma Delta Tau.

DEPARTMENTAL CLUBS

Case Club, El Club Español, Engineers' Council, Enosinian Debating Society, Home Economics Club, Le Cercle Français, Lester F. Ward Sociological Society, Men's Physical Education Club, Phi Sigma Tau (philosophy), Russian Club, Student Bar Association, Women's Athletic Association.

RELIGIOUS ORGANIZATIONS

Baptist Student Union, B'nai B'rith Hillel Foundation, Canterbury Association, Christian Science Organization, Eastern Orthodox Club, Lutheran Student Association, Newman Club, Student Christian Fellowship, Unitarian Club, United Christian Fellowship, Wesley Foundation, and a Religious Council comprised of representatives of all religious organizations.

STUDENT PUBLICATIONS

Amicus Curiae (Law School publication), *The Cherry Tree* (the annual), *The University Hatchet* (weekly newspaper), *The George Washington Law Review*, *Medicine* (engineers' publication), *The Potomac* (literary magazine), *The Specimen* (medical annual), *The Student Handbook*.

OTHER ORGANIZATIONS

Alpha Theta Nu (scholarship winners), Big Sisters, Cheerleaders, Chess Club, Colonial Boosters, Foggy Bottom Sports Car Club, Interfraternity Council, International Students' Society, Inter-sorority Athletic Board, Junior Panhellenic Association, Old Men, Residence Hall Councils, Rifle Club, Senior Panhellenic Association, Student WRCW, Student Council, University Pep Band, Wandering Greeks, Young Democrats Club, Young Republican Club.

Courses of Instruction

On the following pages of this CATALOGUE, under the alphabetically arranged names of the departments of instruction, are listed the courses of instruction offered by the University in the summer of 1964 and in the academic year 1964-65. The courses as here listed are subject to some slight change. The University reserves the right to withdraw any course announced.

HOURS OF INSTRUCTION

Classes are scheduled in the morning, afternoon, and evening. Evening and day-time sections of the same course are identical, are taught by the same staff of instructors, and carry the same amount of credit. By taking the evening and summer classes and extending the time of study beyond the usual four years, a part-time student may complete the requirements and obtain a degree.

EXPLANATION OF COURSE NUMBERS

In the departments of the School of Medicine, first-year courses are numbered from 101 to 200; second-year courses, from 201-300; third-year courses, from 301 to 400; and fourth-year courses, from 401 to 500. This includes courses open to both medical and nonmedical students. Courses limited to nonmedical students follow the numbering system used in "all other schools and colleges" (see below).

In the National Law Center, first-year courses are numbered from 100 to 200; second-year courses, from 201 to 300; third year courses, from 301 to 400, and graduate courses from 401 to 500.

In the School of Engineering and Applied Science courses numbered from 1 through 200 are planned for undergraduate credit, certain courses specified in the Advanced Level options may be taken for graduate credit when arrangements are approved in advance by the instructor and the Dean; those numbered 201 and above are planned for graduate credit and may in certain instances be taken by qualified undergraduate students.

In all other schools and colleges the following system of numbering is used:

First-group courses.—Courses numbered from 1 to 100 are planned for students in the freshman and sophomore years. With the approval of the advisor and the dean, they may also be taken by juniors and seniors. In certain instances, they may be taken by graduate students to make up undergraduate deficiencies or as prerequisite to advanced courses, but they may not be credited toward a higher degree.

Second-group courses.—Courses numbered from 101 to 200 are planned for students in the junior and senior years. They may be credited toward higher degrees only when registration for graduate credit has been approved at the beginning of the

course by the dean responsible for the graduate work and by the instructor and when the completion of additional work has been certified by the instructor.

Third group courses.—Courses numbered from 201 to 300 are planned primarily for graduate students. They are open, with the approval of the instructor to qualified seniors; they are not open to other undergraduates.

INDICATION OF THE AMOUNT OF CREDIT

The number of semester hours of credit given for the satisfactory completion of a course is, in most cases, indicated in parentheses after the name of the course. Thus, a year course giving 3 hours of credit each semester is marked (3-3), and a semester course giving 3 hours of credit is marked (3). A semester hour usually consists of the completion of one fifty-minute period of class work or of one laboratory period a week for one semester.

Accounting

See "Government and Business".

Air Science

Professor A. E. Reiser (*Chairman*)

Assistant Professors W. E. Adams, L. M. Garrell

Instructors Anthony Nassner, C. C. Smarr, C. R. Young

Commission in the United States Air Force Reserve.—Upon being awarded a Bachelor's degree and upon the satisfactory completion of the Air Force ROTC course of instruction prescribed by law and regulations, the graduate will be appointed Second Lieutenant, United States Air Force Reserve.

BASIC COURSE

1-2 Leadership Laboratory—Freshman Year (1-1)

Cadet basic airman training. Military courtesy, discipline, appearance and bearing; element, flight squadron, and mass formation drill; parades and ceremonies; the military mission and the problem of national security. Minimum 15 hours a semester. Laboratory fee, charged one time a year, \$3. (May be substituted for Physical Education 1-2.) (Academic year—day.)

The Staff

- 11-12 Leadership Laboratory—Sophomore Year (1-1)** The Staff
Cadet noncommissioned officer training. Military bearing and courtesy, all phases of drills and ceremonies, command voice training and command responsibility. Prerequisite: Air Science 1-2, 21-22 for men and Air Science 1-2 for women. Political Science 1 or 9 is recommended as an elective during the sophomore year. Maximum 15 hours a semester. Laboratory fee, charged one time a year, \$3. (May be substituted for Physical Education 11-12.) (Academic year—day.)
- 21 Foundations of Aerospace Power—Freshman Year (2)** Garrell
An introductory examination of the factors of aerospace power, major ideological conflicts, requirements for military forces in being, responsibilities of citizenship, development and traditions of the military profession, role and attributes of the professional officer in American democracy, organization of the armed forces as factors in the preservation of national security, and the United States Air Force as a major factor in the security of the free world. (Fall: 2 hours a week—day.)
- 22 Air Science—Freshman Year (2 to 3)**
Any 2 or 3 semester hour introductory college course in the areas of mathematics, physical and natural sciences, foreign languages, the humanities or social sciences approved by the Division of Air Science as meeting the pre-commission officer educational requirements. (Spring.)
- 51 Air Science—Sophomore Year (2 or 3)**
Any 2 or 3 semester hour introductory college course in the areas of mathematics, physical or natural sciences, foreign languages, the humanities or social sciences approved by the Division of Air Science as meeting the pre-commissioned officer educational requirements. (Fall.)
- 52 World Military Systems—Sophomore Year (2)** Adams
A comparative study of world military forces to include Free World land and naval forces, Free World air forces, Communist military systems, and trends in the development and employment of military power. (Spring: 2 hours a week—day.)

ADVANCED COURSE

- 101-2 Growth and Development of Aerospace Power—Junior Year (3-3)** Henriquez*
A survey course about the nature of war; development of airpower in the United States; mission and organization of the Defense Department; Air Force concepts, doctrine, and employment; astronautics and space operations; and the future development of aerospace power. Includes the United States space programs, vehicles, systems, and problems in space exploration. Three class hours per week, one hour of supervised research, and one hour of Leadership Laboratory. (Academic year—day.)
- 105 Summer Training Unit—Between Junior and Senior Years (required)** The Staff
Attendance at a four-week Air Force ROTC summer training unit at an Air Force base within continental United States is mandatory. Program consists of familiarization flying, physical training, individual weapons, Air Force base activity and equipment, field exercises, air base problems, and leadership training.
- 151-52 Air Science—Senior Year (1-1)** Adams
First half: weather and navigation. A study of the weather and navigational aspects of airmanship, such as temperature, pressure, air masses, precipitation, weather charts, and dead reckoning navigation. *Second half:* the Air Force officer. A study of materials to help the cadet make a rapid effective adjustment to active duty as an officer of the United States Air Force. Prerequisite of cadet's registration: one 3 semester hour college course, each semester, approved by the Division of Air Science. Only pilot candidates need take weather and navigation. Others may substitute any college course approved by the Division of Air Science. (Academic year—day.)

* Appointment effective September 1964

153-54 Leadership Laboratory—Senior Year

(Credit is a part of Air Science 151-52)

Cadet officer training. Cadet officers conduct activities of Corps of Cadets through chain of command, instruct subordinates, plan and supervise Cadet Corps training and administration. Preparation for commissioned officer duties. Development of leadership and managerial responsibilities. Minimum 15 hours per semester. (Academic year—day.)

American Thought and Civilization

The American Literature faculty of the English department administers two interdepartmental degree granting programs:

Bachelor of Arts with a major in American Thought and Civilization (Field-of-Study). See page 260.

Master of Arts in the field of American Literature and Cultural History. See page 261.

The faculty responsible for the above programs also administers one special course:

101 American Civilization (3)

Walker and Staff

Lecture (1½ hours), discussion (1½ hours). This is a University-sponsored course designed to offer all students, toward the end of their residence, a broad assessment of the culture in which they are to live and to work. Contemporary problems and characteristics of American society are presented against the background of the humanities and social sciences. Each lecture is delivered by an authority on a particular subject: political, social, and economic problems; international attitudes; important trends in literature, science, the arts, religion, and philosophy. Discussion sections will combine lecture materials with assigned readings in order to achieve an ordered sense of the over all state of American civilization. Prerequisite: successful completion of 8 semester hours credit. Open to graduate students, but available for graduate credit to students in the School of Education only. Recommended as an elective, but not to be taken as part of any major program without specific departmental approval. (late afternoon; spring—evening.)

Anatomy*

Professors I. R. Telford (Chairman), Paul Calabrisi
 Professorial Lecturers T. D. Stewart, J. L. Angel
 Associate Professors F. D. Allan, T. N. Johnson
 Associate Professorial Lecturer B. S. Blumberg
 Assistant Professors J. B. Christensen, J. C. Bartone
 Lecturer L. E. Church
 Graduate Instructor R. N. Brown

* The Staff of Instruction is for the academic year 1963-64

Master of Science in the field of Anatomy.—Prerequisite: a Bachelor of Arts or Bachelor of Science degree from this University, or the equivalent, with a major in Biology, Chemistry, or Zoology. The undergraduate program must include the following courses, or the equivalent: Biology 1-2, Chemistry 11-12, 21, 151-52; Physics 1-2 or former 11, 12; Zoology 103-4. Biochemistry 221-22 is recommended as an elective.

Required: the general requirements, pages 83-85, including Anatomy 203, 204, 205, 221-22, 295-96, 299-300, and graduate courses in biochemistry, physiology, or related fields selected with the approval of the Department. It is not always possible to arrange courses and research so that the student can be assured of completing all the required work in one academic year.

Doctor of Philosophy.—See pages 87-95.

101 Anatomy (12)

The Staff

For medical students. A correlated lecture and laboratory course in human anatomy embracing gross anatomy, embryology, histology, and neuroanatomy. (Fall—24 hours a week.)

201 Gross Anatomy (8)

Calabrisi and Staff

Regional dissection of the human body, supplemented with lectures and quiz sections. Study of X-ray anatomy to emphasize the functional aspects of the position, shape, and relation of the viscera and skeletal components. Laboratory fee, \$30. (Fall—as arranged.)

203 Human Embryology (1)

Allan and Staff

The origin and development of the human body. Special emphasis on the value of embryology in interpreting anatomical anomalies and variations as seen on gross dissection, surgery, obstetrics, and pathology. (Fall—as arranged.)

204 Neuroanatomy (1)

Johnson and Staff

The macroscopic and microscopic study of the central nervous system and the special sense organs. Emphasis on such dynamic aspects as development, pathways, lesions, etc. Laboratory fee, \$13. (Fall—as arranged.)

205 Microscopic Anatomy (3)

Telford and Staff

Study of the detailed minute structure of cells, tissues, and organs of the human body, with emphasis on the relation of structure to function. Recognition and interpretation of histological sections tested by practical examinations. Laboratory fee, \$13. (Fall—as arranged.)

221-22 Seminar (1-1)

Telford and Staff

Research reports and discussions of special topics by the Staff and graduate students. For graduate students. Medical students are encouraged to attend. (Academic year: 1 hour a week—as arranged.)

249-50 Introduction to Medical Research* (3-3)

The Staff

Primarily for graduate students. A comprehensive introduction to the major medical research techniques—anatomical, statistical, physical, chemical, electrical, and radiobiologic—as applied to biological materials in the medical sciences. Laboratory fee, \$7.50 a semester. (Academic year—W 1-5 pm.)

252 Physical Anthropology† (1)

Stewart, Angel

(Spring—Th 1-2 pm.)

254 Fetal Anatomy† (1)

Allan

Laboratory fee, \$10 (Spring—2 hours a week as arranged.)

256 Human Genetics† (1)

Blumberg

(Spring—S 9-10 am.)

258 Central Nervous System Pathways† (2)

Johnson

Laboratory fee, \$13. (Spring—Th 8-12 am.)

* This is an interdepartmental course. The student should register in the department directing his research.

† This is a graduate course open to Medical students as an elective.

- 260 *Regional Gross Anatomy** (1) Calabrisi, Christensen
Laboratory fee, \$10. (Spring—3 hours a week as arranged.)
The Staff
- 295-96 *Research* (arr.)
Fee to be arranged. (Academic year—as arranged.)
The Staff
- 299-300 *Thesis* (3-3)

Anesthesiology[†]

Professors C. S. Coakley (*Chairman*), Seymour Alpert
Clinical Professor D. H. Stubbs
Associate Professor C. R. MacCordy
Assistant Professors Paula Kaiser, Helene Werner, K. H. Hanson, Patricia Russell,
Spyros Macris (*Visting*)
Assistant Clinical Professors S. N. Albert, Maria Benzinger
Instructors Virginia Porter, Marie-Louise Levy
Clinical Instructors W. E. Bageant, Allen Widome, Charles Gruenwald, E. J. Dealy
The Staff

320 *Anesthesiology*
The fundamentals of anesthesia are reviewed and correlated with other medical specialties. (Spring—1 hour a week.)
The Staff

421-22 *Anesthesia Seminar*
Students attend anesthesia seminars during their surgical clinical clerkships. University Hospital. (Academic year—1 hour a week.)
The Staff

433-34 *Advanced Anesthesiology*
Students are rotated through the work of the department for a period of two weeks and assigned to work in the operating rooms and to attend conferences and seminars. For the more advanced students a three week elective is offered. (Academic year—as arranged.)
The Staff

Art[†]

Professors D. C. Kline (*Chairman*), W. A. MacDonald
Professorial Lecturer Grace Evans
Associate Professor L. P. Leite
Associate Professorial Lecturer Robert Parris
Assistant Professors George Steiner, E. E. Harrison, D. H. Teller
Studio Lecturer Jacqueline Meyer
Studio Lecturers on the Staff of the Corcoran School of Art Edmund Archer, Heinz

* This is a graduate course open to Medical students as an elective.
† The Staff of Instruction is for the academic year 1963-64.

Warneke, Jack Perlmutter, Alexander Russo, Richard Lafean, John Reddick, Joseph Taney, Don Turano, Clifford Chieffo, Albert Davis, Terno Hara, Paul Hoffmaster, Francis Luzzatto.

Studio Lecturers in Applied Music R. H. Harmon, Norman Scribner, John Stephens, Margaret Tolson, Jule Zabawa, Mary Beardsley, Marian Burke, Melissa Graybeal, Ervin Klinckon, Mark Thomas

Bachelor of Arts with a major in (1) *Art History and Theory*, (2) *Drawing and Painting*, (3) *Sculpture*, (4) *Advertising Design*, or (5) *Ceramics (Departmental)*:

The major in Art History and Theory.—Prerequisite: the Arts and Letters curriculum, page 70, or the equivalent, including Art 31-32 and 71-72.

Required: in addition to the general requirements, pages 76-80, eighteen semester hours, as follows: Art 101 or 102, 103, 104 or 105, 110, 112, 113 or 114; and twelve semester hours selected from second-group courses, or from third-group courses open to undergraduates with the approval of the instructor. Students intending to major in this field are urged to acquire a reading knowledge of a foreign language, preferably French or German, at the earliest possible convenience.

American Thought and Civilization 101 *American Civilization* is recommended as a senior-year elective for Art majors.

The major in Drawing and Painting, Sculpture, Advertising Design, or Ceramics.

Required: in addition to the general requirements, pages 76-80, twenty-four semester hours of studio practice; six hours of art history selected from second-group courses or from third-group courses open to undergraduates with the approval of the instructor.

The major in Drawing and Painting or Sculpture.—Prerequisite: the Arts and Letters curriculum, page 70, or the equivalent, including Art 21-22, 31-32 or 71-72, and six hours selected from the following: Art 35-36, 41-42, 51-52, 57-58, 65-66, or 81-82.

The major in Advertising Design.—Prerequisite: the Arts and Letters curriculum, page 70, or the equivalent, including Art 21-22, 31-32 or 71-72, and 41-42.

The major in Ceramics.—Prerequisite: the Arts and Letters curriculum, page 70, or the equivalent, including Art 21-22, 31-32 or 71-72, and 51-52.

Courses in the practice of art with the exception of Art 21-22, 57-58, 121-22, 123-24, and 143-44 are held at the Corcoran School of Art.

Bachelor of Arts with a major in (1) *Music History and Literature*, (2) *Music Theory*, or (3) *Applied Music (Departmental)*.—Prerequisite: the Arts and Letters curriculum, page 70, or the equivalent, including Music 5-6.

Required: in addition to the general requirements, pages 76-80, Music 103-4 and 131-32; a minimum of four semesters in Music Ensemble groups (or evidence of equivalent experience); twenty-four semester hours of second-group courses as follows:

1. *For the major in Music History and Literature.*—Fifteen semester hours of Music History and Literature courses, six hours of Applied Music, and Music 135 or 137.

2. *For the major in Music Theory.*—Twelve semester hours of Music Theory courses, six hours of Music History and Literature courses, and six hours of piano (either instrument or voice if departmental requirements for proficiency in piano are met).

3. *For the major in Applied Music.*—Twelve semester hours of Applied Music in field of specialization and participation in senior recital, six hours of Music Theory courses, and six hours of Music History and Literature courses.

American Thought and Civilization 101 *American Civilization* is recommended as a senior-year elective for Music majors.

Master of Arts in the field of Art History and Criticism with concentrations in Classical Art and Archaeology, Art of the Americas, Renaissance and Baroque Art, and Contemporary Art.—Prerequisite: the degree of Bachelor of Arts with a major in Art History and Theory at this University, or the equivalent.

Required: the general requirements, pages 83-85. As much as possible of the twenty-four semester hours in course work should be in third-group courses. A general written examination in the problems in the field of Art History and Criticism; a written thesis embodying the results of research on some specific topic in the history and criticism of art.

Master of Fine Arts in the field of Painting, Sculpture, or Ceramics. Prerequisite: the degree of Bachelor of Arts with a major in Drawing and Painting, Sculpture, or Ceramics at this University, or the equivalent.

Required: the general requirements, pages 83-85. As much as possible of the twenty-four semester hours in course work should be in third-group courses. A creative thesis in painting or sculpture; a paper discussing some technical phase of the problem illustrated by the thesis.

Bachelor of Arts in Education with a teaching field in Art. Prerequisite: the Education curriculum, page 72.

Required: the Art option and professional courses listed in the School of Education Catalogue.

Bachelor of Arts in Education with a teaching field in Music. Prerequisite: the Education curriculum, page 72.

Required: the Music option and professional courses listed in the School of Education Catalogue.

ART HISTORY AND THEORY

FIRST GROUP

1 *Art Appreciation* (3)

The language and function of art in its various media; the historical development of styles, aesthetic principles, theories, and the ideas in art through the ages. Primarily for nonmajors. (Fall and spring—day and evening; summer 1964.)

MacDonald and Staff

31-32 *Survey of Western Art* (3-3)

A survey of the arts in the Western World from prehistoric to modern times. A foundation for further study in the history of art. (Academic year—day and evening.)

Leite and Staff

71-72 *Introduction to the Arts in America* (3-3)

Painting, sculpture, and architecture of America, with selected references to the crafts and popular arts. First half: from Colonial beginnings to the Republican Age. Second half: from early 19th century to the present. (Academic year—day and evening; summer 1964—Art 71 (3).)

Kline

SECOND GROUP

101 *Greek and Roman Architecture* (3)

(Fall—day.)

MacDonald

102 *Greek and Roman Sculpture* (3)

(Spring—day.)

MacDonald

103 *Medieval Art* (3)

Architecture, sculpture, and painting from the formative stages of Christian Art in the Byzantine Age through the Romanesque and Gothic periods. (Fall—day.)

Evans

104 *Renaissance Art in Italy I* (3)

The early developments from the 14th to the 15th century. (Fall—day.)

Leite

105 *Renaissance Art in Italy II* (3)

The High Renaissance and Mannerism. (Spring—day.)

Leite

106 *Renaissance Art in the North* (3)

The painting in the Netherlands, Germany, France, Spain, and Portugal. (Offered 1964-65.)

Leite

107 *Eighteenth Century Art in Europe* (3)

The development of painting, sculpture, and architecture in 18th century Europe. (Spring—day; summer 1964.)

Evans

- 109 *Nineteenth Century Art in Europe* (3) Leite
Painting and sculpture from Academism to Symbolism. (Summer—1964.)
- 110 *Contemporary Art* (3) Leite
Painting and sculpture in 20th century Europe. (Spring—day; summer 1964.)
- 111 *Classical Archeology* (3) MacDonald
Archeological monuments of classical civilizations, with intensive study of one or more areas selected from architecture, sculpture, painting, or minor arts. (Summer 1964.)
- 112 *Art of Egypt and the Ancient Orient* (3) MacDonald
A study of the art of Mesopotamia, Anatolia, Egypt, and Persia. (Spring—day.)
- 113 *Baroque Art in Italy* (3) Leite
The development of painting, sculpture, and architecture in the 16th and 17th centuries in Italy. (Fall—day.)
- 114 *Baroque Art in the North* (3) Evans
The development of painting, sculpture, and architecture in the 16th and 17th centuries in Holland, Flanders, Spain, France, Germany, and England. (Spring—day.)
- 115 *Christian Iconography* (3) Leite
The origins and development of Christian symbols and themes from Early Christian to modern times. (Not offered 1964-65.)
- 116 *Classical Iconography* (3) MacDonald
The origin and development of myths in classical art. (Fall—day.)
- 120 *Art of China and Japan* (3) Kline
The architecture, painting, and sculpture of China, Korea, and Japan. (Not offered 1964-65.)
- 141 *Interior Decoration* (4) Kline and Staff
Lecture (2 hours), laboratory (3 hours). The principles of decoration dealing with furniture designs and ensemble layout, draperies, color, accessories, and lighting. Studio fee, \$5. (Fall—day.)
- 142 *House Planning* (3) Kline
The contemporary house for family living, including site problems, the case plan, materials of building, and climate conditioning. (Spring—day.)
- 143 *Folk Arts in America* (3) Kline
Ceramics, woodcarving, ironwork, decorative painting, weaving, and other crafts; selected references to American folk music. (Not offered 1964-65.)

THIRD GROUP

- 203 *Primitive Art** (3) Kline
The arts of prehistoric and primitive man in Europe in the pre-Columbian Americas, Oceania, and Africa. (Fall—day.)
- 207 *Modern Architecture* (3) Kline
The development of modern architecture and building technology in Europe and America from the late 19th century to the present. (Summer 1964.)
- 243 *Seminar in American Art* (3) Kline
(Not offered 1964-65.)
- 244 *Seminar in Naturalism and Realism* (3) Leite
A reading knowledge of French is desirable. (Not offered 1964-65.)
- 245 *Seminar in Romanticism* (3) Leite
A reading knowledge of French and German is desirable. (Not offered 1964-65.)

* May be taken for undergraduate credit with the approval of the instructor

- 216 *Seminar in Classical Art* (3)
(Fall—evening; summer 1964). MacDonald
- 247 *Seminar in Symbolism* (3)
(Fall—day.) Leite
- 248 *Studies in Classical Art* (3)
(Spring—evening.) MacDonald
- 261 *Art Theory and Criticism* (3)
History of theory and criticism with area of concentration selected from Classical, Medieval, Renaissance, and Modern fields. (Spring—day; summer 1964.) The Staff
- 289-90 *Thesis* (3-3)
(Academic year—as arranged; summer 1964.) The Staff

DRAWING AND PAINTING, SCULPTURE, ADVERTISING DESIGN, AND CERAMICS

FIRST GROUP

- 21-22 *Basic Design** (3-3)
The fundamentals of two- and three-dimensional design. Material fee, \$10 a semester. (Academic year—day and evening; summer 1964.) Teller and Staff
- 35-36 *Advertising Design I* (3-3)
Fundamentals of advertising and editorial layout. (Academic year—day and evening.) Taney and Staff
- 41-42 *Drawing and Perspective* (3-3)
An introductory course in object and figure drawing and mechanical perspective. (Academic year—day and evening; summer 1964—Art 41 (3).) Russo
- 51-52 *Ceramics I* (3-3)
Basic techniques for clay preparation, hand forming, wheel throwing, and the application of slip glazes and vitreous glazes through workshop and illustrated lectures. Material fee, \$25 a semester. (Academic year—day and evening; summer 1964.) Lafean, Hara
- 57-58 *Introduction to Graphic Techniques* (3-3)
Exploration of the methods of intaglio, relief, serigraphy, and other composite methods. Studio fee, \$10 a semester. (Academic year—day and evening; summer 1964—Art 57 (3).) Moyer
- 65-66 *Drawing and Painting I—Life, Still Life, and Portrait* (3-3)
Primarily for nonmajors. (Academic year—day and evening; summer 1964—Art 65 (3).) The Staff
- 81-82 *Sculpture I* (3-3)
Material fee, \$10 a semester. (Academic year—day and evening; summer 1964.) Warneke, Turano

SECOND GROUP†

- 121-22 *Advanced Design* (6-6)
An advanced study in organic and stereometric design with special emphasis on the use of materials and their appropriate application to the problem. Studio fee, \$10 a semester. (Academic year—day and evening.) Teller and Staff

* Art 21-22 is prerequisite to all other studio courses.
† Material fees for courses in ceramics and sculpture are to be paid at the Concordia School of Art.
‡ All second-group courses may be repeated for credit with the approval of the Department.

123-24 Design Workshop (3-3)

Teller

Exploration of design possibilities in wood, metal, textile, plastics, and other materials with special emphasis on problems for teachers in the field. Studio fee, \$10 a semester. (Summer 1964.)

125-26 Drawing and Painting II—Life, Still Life, and Portrait (6-6)

The Staff

(Academic year—day and evening; summer 1964.)

127-28 Drawing and Painting III—Life and Portrait (6-6)

The Staff

(Academic year—day and evening.)

131-32 Ceramics II (6-6)

Lafean

Basic techniques in clay and glaze formation, advanced wheel throwing and hand forming, mosaic. Practical experience in display. Individual projects in a choice of techniques, and experimentation in the possibilities and limitations of the medium. Oxidation firing, ceramic design, current directions of the studio potter, research in studio procedures and equipments. Material fee*, \$30 a semester. (Academic year—day and evening; summer 1964—Art 131 (3).)

143-44 Serigraphy (3-3)

Teller

Advanced problems in serigraphy with emphasis on its aesthetic possibilities. Studio fee, \$10 a semester. Prerequisite: Art 57-58. (Academic year—day.)

151-52 Ceramics III (6-6)

Lafean

Advanced glaze calculation, experimentation in reduction firing, individual problems in formation techniques, and problems in series production for the studio artist. Advanced decorating and finishing techniques. Studio teaching techniques and marketing procedures. Material fee*, \$30 a semester. (Academic year—day and evening; summer 1964—Art 151 (3).)

157-58 Printmaking (6-6)

Perlmuter

Relief printing and wood block, with special reference to western and eastern techniques. (Academic year—day.)

159-60 Anatomy and Techniques (6-6)

Russo

Special problems in anatomy and drawing and painting of the life model in action. (Academic year—day.)

161 Workshop in Ceramics (3)

Lafean and Staff

Proper use of ceramic equipment, study of ceramic materials, class projects for varying age groups. Material fee*, \$35. (Summer 1964.)

175-76 Advanced Design and Composition (6-6)

Ruddley

Advanced problems in creative design and composition. (Academic year—day and evening; summer 1964—Art 175 (3).)

179-80 Sculpture II (6-6)

Warneke, Turano

Portrait-life modeling and composition in clay; plaster and wood carving. Material fee*, \$10 a semester. (Academic year—day and evening; summer 1964—Art 179 (3), Art 180 (3).)

183-84 Advertising Design II (6-6)

Taney and Staff

Problems in the production of advertisements, posters, magazines, pamphlets, displays, exhibits, photography, and materials for television. (Academic year—day and evening.)

185-86 Advertising Design III (6-6)

Taney and Staff

Advanced problems and techniques in supervision and production of various commercial projects. (Academic year—day and evening.)

189-90 Sculpture III (6-6)

Warneke

Advanced problems in modeling and direct carving. Prerequisite: 18 semester hours of sculpture. Material fee*, \$10 a semester. (Academic year—day and evening; summer 1964—Art 189 (3), Art 190 (3).)

* Material fees for courses in ceramics and sculpture are to be paid at the Corcoran School of Art

THIRD GROUP

- 251-52 *Ceramics IV* (6-6) Lafean and Staff
Material fee*, \$30 a semester. (Academic year—day and evening; summer 1964—
Art 251 (3).)
- 253 *Ceramics V* (6) Lafean and Staff
Material fee*, \$30. (Fall and spring—day and evening; summer 1964—Art 253 (3).)
- 265-66 *Painting IV* (6-6) The Staff
(Academic year—day and evening; summer 1964—Art 265 (3), Art 266 (3).)
- 275 *Painting V* (6) The Staff
(Fall and spring—as arranged; summer 1964—Art 275 (3).)
- 279-80 *Sculpture IV* (6-6) Warneke, Turano
Material fee*, \$10 a semester. (Academic year—as arranged; summer 1964—Art
279 (3).)
- 281 *Sculpture V* (6) Warneke
Material fee*, \$10. (Fall and spring—as arranged; summer 1964—Art 281 (3).)
- 299-300 *Thesis* (3-3) The Staff
(Academic year—as arranged; summer 1964.)

MUSIC HISTORY AND LITERATURE AND
MUSIC THEORY

FIRST GROUP

- 3 *Introduction to Music* (3) Steiner, Harrison
An introduction to the historical sequences of musical style, the elements of music,
and the media of musical presentation. (Fall—day and evening; summer 1964.)
- 4 *Survey of Music Literature and Forms* (3) Steiner, Harrison
General study of musical forms, structures, and textures as well as the works of the
principal composers. (Spring—day and evening; summer 1964.)
- 5-6 *Music Theory* (3-3) Harrison
Lecture (3 hours), laboratory (1 hour). Fundamentals of music—ear-training, sight
singing, notation, melodic and harmonic dictation; principles and practical use of ele-
ments of music, including scales, keys, intervals, triads, chords, cadences, and basic
harmonic contrapuntal practice. (Academic year—day.)

SECOND GROUP

- 103-4 *History of Music* (3-3) Steiner
The development of music in the Western World from the early Christian Era to the
present. (Academic year—day; summer 1964.)
- 105 *Music of the Baroque Period* (3) Harrison
Study of the musical styles, techniques, and literature from 1600 to 1750.
(Fall)
- 106 *Music of the Classic Period* (3) Harrison
Study of styles, techniques, and literature from the 18th century schools through
Haydn, Mozart, and Beethoven. (Spring—day.)
- 107 *Music of the Romantic Period* (3) Harrison
(Not offered 1964-65.)

* Material fees for courses in ceramics and sculpture are to be paid at the Corcoran School of Art
† All third-group courses may be repeated for credit with the approval of the Department

- 109 *Orchestra Literature* (3) Steiner
Survey of the history and styles of orchestra literature; analysis of representative works. (Fall—day.)
- 110 *Chamber Music Literature* (3) Steiner
Survey of the history and styles of chamber music literature; analysis of representative works. (Spring—day.)
- 121 *The Opera* (3) Harrison
Survey of the history and styles of opera; analysis of representative works. (Fall—day.)
- 131-32 *Advanced Music Theory* (3-3) Parris
Practice in harmonic writing, figured and unfigured bass, secondary and altered chords, nonharmonic tones and extended modulations. Prerequisite: Music 5-6 or the equivalent. (Academic year—day.)
- 135 *Counterpoint* (3) Parris
Strict counterpoint up to four parts. Techniques of small contrapuntal forms. (Spring—evening.)
- 137 *Orchestration* (3) Parris
Instrumental orchestral scoring. (Fall—evening.)
- 138 *Form and Analysis* (3) Harrison
Analysis of musical forms in representative musical literature. (Spring—day.)

APPLIED MUSIC

All Applied Music courses may be repeated for credit.

FIRST GROUP

- 11 *Piano* (1) Tolson, Parris, Burke
Individual lesson (½ hour), required practice (3 hours). Studio fee, \$40. (Fall and spring—as arranged; summer 1964.)
- 12 *Piano* (2) Tolson, Parris, Burke
Individual lesson (1 hour), required practice (6 hours). Studio fee, \$80. (Fall and spring—as arranged.)
- 13 *Voice* (1) Zabawa
Individual lesson (½ hour), required practice (3 hours). Studio fee, \$40. (Fall and spring—as arranged; summer 1964.)
- 14 *Voice* (2) Zabawa
Individual lesson (1 hour), required practice (6 hours). Studio fee, \$80. (Fall and spring—as arranged.)
- 15 *Organ* (1) Scribner
Individual lesson (½ hour), required practice (3 hours). Studio fee, \$40. (Fall and spring—as arranged; summer 1964.)
- 16 *Organ* (2) Scribner
Individual lesson (1 hour), required practice (6 hours). Studio fee, \$80. (Fall and spring—as arranged.)
- 17 *Orchestral Instrument* (1) The Staff
Individual lesson (½ hour), required practice (3 hours). Studio fee, \$40. (Fall and spring—as arranged; summer 1964.)

- 18 *Orchestral Instrument* (2)
Individual lesson (1 hour), required practice (6 hours). Studio fee, \$80. (Fall)
and spring—as arranged.) The Staff
- 51 *Orchestra* (1)
Preparation and performance of orchestral literature. Prerequisite: audition before Director. (Fall and spring—evening.) Steiner
- 53 *Chorus* (1)
Preparation and performance of choral literature. Prerequisite: audition before Director. (Fall and spring—evening.) Harmon

SECOND GROUP

Before admission to second-group courses in Applied Music, the student must demonstrate, in audition, that he meets departmental requirements. The studio fee is waived for full-time music majors.

- 111 *Piano* (1)
Individual lesson (½ hour), required practice (5 hours). Studio fee, \$40. (Fall)
and spring—as arranged; summer 1964.) Tolson, Parris
- 112 *Piano* (3)
Individual lesson (1 hour), required practice (10 hours). For music majors only. Studio fee, \$120. (Fall and spring—as arranged.) Tolson, Parris
- 113 *Voice* (1)
Individual lesson (½ hour), required practice (5 hours). Studio fee, \$40. (Fall)
and spring—as arranged; summer 1964.) Zabawa
- 114 *Voice* (3)
Individual lesson (1 hour), required practice (10 hours). For music majors only. Studio fee, \$120. (Fall and spring—as arranged.) Zabawa
- 115 *Organ* (1)
Individual lesson (½ hour), required practice (5 hours). Studio fee, \$40. (Fall)
and spring—as arranged; summer 1964.) Scribner
- 116 *Organ* (3)
Individual lesson (1 hour), required practice (10 hours). For music majors only. Studio fee, \$120. (Fall and spring—as arranged.) Scribner
- 117 *Orchestral Instrument* (1)
Individual lesson (½ hour), required practice (5 hours). Studio fee, \$40. (Fall)
and spring—as arranged; summer 1964.) The Staff
- 118 *Orchestral Instrument* (3)
Individual lesson (1 hour), required practice (10 hours). For music majors only. Studio fee, \$120. (Fall and spring—as arranged.) The Staff

Biochemistry*

Professors J. H. Roe (*Emeritus*), C. R. Treadwell (*Chairman*)
Professorial Lecturers W. R. Carroll, Arthur Weissbach, Leon Swell, Sidney Uden-
 friend, C. A. Kuether, W. W. Burr, R. W. Albers, R. O. Brady, Jr.
Associate Professors B. W. Smith, G. V. Vahouny, J. M. Bailey
Assistant Professor A. R. Brecher

Special Lecturers Herbert Weissbach, Walter Mertz

Master of Arts or Master of Science in the field of Biochemistry.—Prerequisite: a Bachelor of Arts or a Bachelor of Science degree. The undergraduate program must have included the following courses, or the equivalent: Biology 1-2; Chemistry 11-12, 21, 22, 151-52; Physics 1-2 or former 11 and 12.

Required: the general requirements, pages 83-85, including Biochemistry 221-22, 227-28, 249-50, 299-300. The remaining courses are to be selected from Biochemistry 224, 232, 241, 251, 261, 295-96, or, with the approval of the adviser, from graduate courses in Marine Biology, Chemistry, Physiology, or Pharmacology. It is usually not possible to arrange courses and research so that the student can be assured of completing all of the required work in one academic year.

Doctor of Philosophy.—See pages 87-95.

113-14 **Medical Biochemistry**

Lecture (2 hours), conference (1 hour), laboratory (6 hours). Physiological and clinical chemistry. For medical students. (Academic year—as arranged.)

The Staff

221-22 **General Biochemistry (4-4)**

Vahouny

A lecture and laboratory course for nonmedical students. Prerequisite: Chemistry 152. Material fee, \$15 a semester. (Academic year—TTh 8-12 am.)

224 **Biochemistry of the Enzymes (1)**

A. Weissbach

Lecture course dealing with the biochemistry of the enzymes and enzyme reactions. Prerequisite: Biochemistry 113 or 221. (1964-65 and alternate years: spring—Th 5 pm.)

225-26 **Biochemical Procedures (3-3)**

Smith and Staff

A laboratory course. Material fee, \$16 a semester. (Academic year—as arranged.)

227-28 **Biochemistry Seminar (1-1)**

The Staff

The current literature in the field of biochemistry, mainly for graduate students, but open to a limited number of specially qualified medical students. (First half: F 5 pm. Second half: F 4 pm.)

232 **Proteins and Amino Acids (1)**

Carroll

A lecture course. Prerequisite: Biochemistry 113 or 221. (Spring—W 5 pm.)

244 **Biochemistry of the Brain (1)**

Albers, Brady

Spring—Th 1 pm.)

236 **Human Nutrition (1)**

Pollack

(Spring—Th 2 pm.)

238 **Biochemistry of Organ Function (1)**

Kramer

(Spring—Th 3 pm.)

*The Staff of Instruction is for the academic year 1963-64

- 241 *Isotopes* (2) Burr
Theoretical characterization of isotopes and their applications in biology. Attention will be given to counting, health physics and radiation safety, autoradiography and chromatography. (Spring—S 8 am.)
- 249-50 *Introduction to Medical Research** (3-3) Bailey
Primarily for graduate students. A comprehensive introduction to the major medical research techniques—anatomical, statistical, physical, chemical, electrical, and radioisotopic—as applied to biological materials in the medical sciences. Laboratory fee, \$7.50 a semester. (Academic year—W 1-5 pm.)
- 251 *Carbohydrate Metabolism* (1) A. Weissbach
A lecture course. Prerequisite: Biochemistry 114 or 222. (1965-66 and alternate years: spring—Th 5 pm.)
- 261 *Biochemistry of the Lipids* (1) Swell, Treadwell
A lecture course. Prerequisite: Biochemistry 114 or 222. (Spring—S 12 noon.)
- 295-96 *Research in Biochemistry* (arr.) The Staff
(Academic year—as arranged.)
- 299-300 *Thesis* (3-3) The Staff

Biology

See "Botany", below.

Botany[†]

Professors R. B. Stevens (Chairman), R. L. Weintraub

Professorial Lecturer L. B. Smith

Associate Professors J. M. Kaper (Research), Caroline Adams

Associate Professorial Lecturers Kattie Parker, R. N. Szafrons, Edward Hruskayla

H. M. Cathey, R. N. Stewart

Lecturers W. A. Shropshire, Jr., M. M. Margulies

Bachelor of Arts or Bachelor of Science with a major in Botany (Departmental)—the prerequisite: the Arts and Letters or the Science curriculum, respectively, pages 70-71, including Biology 1-2, or the equivalent.

Required: in addition to the general requirements, pages 76-80, a minimum of twenty-four semester hours of second-group courses in Botany or in a combination of Botany and related sciences as approved by the Chairman.

* This is an interdepartmental course. The student should register in the department directing his research.

† The Staff of Instruction is for the academic year 1963-64.

Bachelor of Arts or Bachelor of Science with a major in Biology (Departmental).—This interdepartmental major may be arranged in conjunction with the Department of Zoology. Prerequisite: the Arts and Letters or the Science curriculum, respectively, pages 70-71, including Biology 1-2, or the equivalent.

Required: in addition to the general requirements, pages 76-80, a minimum of twenty-four semester hours of second-group courses which should include at least six hours in Botany, six in Zoology, and six in interdepartmental courses.

Master of Arts or Master of Science in the field of Botany.—Prerequisite: the equivalent of a Bachelor of Arts or Bachelor of Science degree, respectively, from this University with a major in Botany or Biology.

Required: the general requirements, pages 83-85.

Master of Arts or Master of Science in the field of Biology.—This interdepartmental field may be arranged in conjunction with the Department of Zoology. Prerequisite: the equivalent of a Bachelor of Arts or Bachelor of Science degree, respectively, from this University with a major in Botany, Zoology, or Biology.

Required: the general requirements, pages 83-85, which should include at least six hours in Botany, six in Zoology, and six in interdepartmental courses.

Doctor of Philosophy (in a field of Botany or Biology).—See pages 87-95.

Bachelor of Arts in Education with a teaching field in Biology.—Prerequisite: the Education curriculum, page 72.

Required: the Biology option and the professional courses listed in the School of Education Catalogue.

BIOLOGY

FIRST GROUP*

12 Introductory Biology* (4-4)

An interdepartmental course. Lecture (2 hours), laboratory (4 hours). This course is designed to provide the nonscience student with an understanding of the life sciences and to serve as a basis for those who may wish to continue in some aspect of biology. It is the introductory course leading to all second- and third-group courses in botany and zoology, and is taught jointly by the staff members of the two departments. Designed to be taken in either sequence; students may be registered for either 1 or 2 at the beginning of the academic year, depending on laboratory space available. Material fee, \$10 a semester. (Biology 1—Plant Sciences (4): fall and spring—day and evening; summer 1964. Biology 2—Animal Sciences (4): fall and spring—day and evening; summer 1964.)

The Staff

BOTANY

SECOND GROUP*

104 Field Botany—Lower Plants (3)

Lecture (1 hour), laboratory and field (4 hours). A course, primarily for nonspecialists, emphasizing algae, mosses, and ferns. (1964 and alternate summers.)

Adams

105 Field Botany—Seed Plants (3)

Lecture (1 hour), laboratory and field (4 hours). A course, primarily for nonspecialists, emphasizing local flora. (1965 and alternate summers.)

Parker

*Biology 1-2 is prerequisite to all second-group courses in Botany, except by permission of the instructor.

- 108 *Organic Evolution** (3) Munson
Theories of organic evolution and present ideas on the principal lines of development in the plant and animal kingdoms; review of the contributions to an understanding of the mechanisms involved in this process. (1964-65: spring—evening; 1965-66: spring—day.)
- 109-10 *Plant Morphology* (3-3) Adams
(1965-66)
Lecture (2 hours), laboratory (2 hours). Material fee, \$8 a semester. and alternate years.)
- 113 *Plant Microtechnique* (3) Adams
Lecture (1 hour), laboratory (4 hours). An introduction to techniques and problems involved in the preparation of botanical materials for morphological examination. Material fee, \$10. (1964-65 and alternate years: fall—day.)
- 115-16 *Cytology** (3-3)
Lecture (1 hour), laboratory (4 hours). The morphological and physiochemical properties of plant and animal cells and their components. Preparation of material for study. Prerequisite: one year of chemistry and two years of biological sciences. Material fee, \$11 a semester. (Academic year—day.)
- 125-26 *Plant Taxonomy* (3-3) Parker
Lecture (1 hour), laboratory and field (4 hours). (1965-66 and alternate years.)
- 127 *Genetics** (3) Stewart
A lecture course in which the general principles are illustrated with specific examples of inheritance in plants and animals, including man. (Fall—evening; 1964 and alternate summers.)
- 131-32 *Mycology* (3-3) Stevens, Hacskeylo
(1964-65)
Lecture (2 hours), laboratory (2 hours). Material fee, \$8 a semester. and alternate years: academic year—evening.)
- 133-34 *Plant Pathology* (3-3) Stevens
(1965-66)
Lecture (2 hours), laboratory (2 hours). Material fee, \$8 a semester. and alternate years.)
- 135-36 *Plant Physiology* (3-3) Weintraub, Cathey
Lecture (2 hours), laboratory (2 hours). Prerequisite: Botany 140 or permission of the instructor. Material fee, \$8 a semester. (1964-65 and alternate years: academic year—day.)
- 139-40 *Cell Physiology** (3-3) Shropshire, Weintraub
(Botany 139-40 replace former 140)
The fundamental physiology of protoplasm. Prerequisite: Chemistry 12. Students who received credit for Botany 140 prior to 1964-65 may register for the second semester of Botany 139-40. (Academic year—evening; 1965 and alternate summers.)
- 141-42 *Plant Ecology* (3-3) Sigafous
Lecture (1 hour), laboratory and field (4 hours). (1964-65 and alternate years: academic year—evening.)

THIRD GROUP

- 201-2 *Seminar: Cytology** (3-3) (Academic year—evening.)
A study in the current literature in experimental cytology.
- 221 *Seminar: Plant Taxonomy†* (3) Smith, Parker
(1964-65 and alternate years: fall—evening.)

* An interdepartmental course offered by the departments of Botany and Zoology. Students may register in either department.

† This seminar may be repeated once for credit.

232 Seminar: <i>Mycology and Plant Pathology</i> * (3) (1964-65 and alternate years: spring-evening.)	Stevens
235 Seminar: <i>Plant Physiology</i> * (3) (1965-66 and alternate years.)	Weintraub, Cathey
242 Seminar: <i>Plant Ecology</i> * (3) (1965-66 and alternate years.)	Sigafoos
252 Seminar: <i>Plant Virology</i> (2) (1965-66 and alternate years.)	Kaper
295-96 Research (arr.) Fee to be arranged. (Academic year—as arranged; summer 1964.)	The Staff
299-300 Thesis (3-3) (Academic year—as arranged; summer 1964.)	The Staff

Business Administration

Business and Public Administration

See "Government and Business".

Chemistry†

Professors B. D. Van Evera, S. N. Wrenn, C. R. Naeser (*Chairman*), R. C. Vincent, W. F. Sager, R. E. Wood, T. P. Perros, W. E. Schmidt, D. G. White, J. W. Harkness
Assistant Professors R. C. Sautz, Margaret Ethier, D. H. Eargle, Nicolae Filipesco
Instructor G. W. Mushrush

Registration. Before completing registration each student must obtain from the representative of the Department an assignment to lecture, recitation, and laboratory sections. The work of the junior and senior years must be approved by the Department.

Bachelor of Arts or Bachelor of Science with a major in Chemistry (Departmental). The Department offers two undergraduate majors designed to give students broad training in the basic divisions of chemistry: analytical, inorganic, organic, and physical chemistry. Major I, although providing for considerable concentration in chemistry, permits a wider choice of electives, and thus should meet the needs of students preparing to enter medicine, dentistry, or related fields. Major II, is intended primarily for students preparing to enter chemistry in graduate school or those planning to enter the chemical profession. Graduating students may be certified to the American Chemical Society as having met the minimum requirements for membership.

The seminar may be repeated once for credit.
The staff of instruction is for the academic year 1963-64.

requirements for professional training. Both majors require the passing of the major examination at the end of the senior year. The correlated knowledge upon which the student will be examined includes the four divisions of chemistry named above. Two foreign languages are recommended for students planning to do graduate work in chemistry including Chemistry 11-12 or 15, 21, and 22, Mathematics 22 and 23, Physics 1-2, 51-52 (or former 11, 12, 13, 16; or 11, 14, 15, and 16).

Major I.—Required: the general requirements, pages 76-80, including Chemistry 111, 112, 113, 116 (or former 114), 122, 134 (or 235-36), 151-52, 135 or 155 (two semester hours), and 193.

Major II.—Required: the general requirements, pages 76-80, including the German language, all requirements in *Major I*, plus Chemistry 153 or 155 and one course selected from the following: Chemistry 203, 213, 221, 222, 245, or 251; or Mathematics 139 or 171; or Physics 163 (optical), 167, 168 or 173. The student is encouraged to take Mathematics 24 and Physics 31-32 in preparation for advanced courses and graduate work. These courses are essential to graduate work in theoretical chemistry.

Master of Arts or Master of Science in the field of Chemistry.—Prerequisite: the degree of Bachelor of Arts or Bachelor of Science, respectively, with a major in Chemistry from this University, or the equivalent.

Required: the general requirements, pages 83-85. All prospective Master's candidates must take qualifying examinations in the fields of analytical, inorganic, organic, and physical chemistry. These examinations will be given during the first week of classes each semester, and are a part of the prerequisites for all advanced courses. At least two of these examinations must be taken at the beginning of the first year of registration and the remaining one(s) must be taken at the beginning of the second year. Deficiencies, if any, shall be eliminated by assignment to appropriate courses in the 100 group for which a limited amount of graduate credit may, upon petition, be assigned for courses normally taken by seniors. The thirty hours of required work must include Chemistry 213 and at least one three semester hour course in the 200 group in two of the three fields of analytical, inorganic, and organic chemistry. In addition, the thirty hours must include at least four semester hours of laboratory work, Chemistry 193 and 299-300. Chemistry 193 is prerequisite to thesis work in the field of organic chemistry. A reading knowledge examination in French or German (German preferred) must be passed before the second half of the work is started.

Master of Science in the field of Geochemistry (an interdepartmental degree offered by the departments of Chemistry and Geology).—Prerequisite: the degree of Bachelor of Arts or Bachelor of Science, respectively, with a major in Chemistry or in Geology from this University, or the equivalent. Before admission to Master's candidacy, the student with an undergraduate major in Geology must demonstrate by credit or examination a knowledge of the content of Chemistry 21, 111, 112; Mathematics 22, 23; Physics 1-2, 51-52 (or former 11, 12, 13, 16; or 11, 14, 15, 16).

Required: the general requirements, pages 83-85, including Chemistry 213; Geology 181, 241, 246, 259-60. All prospective Master's candidates must take qualifying examinations in the fields of analytical and physical chemistry, inorganic chemistry, and geochemistry before the second half of the program is started. The Master's Examination must be taken before registration for the second half of the thesis work. With permission of the interdepartmental committee on geochemistry the German language may be replaced by Russian.

Doctor of Philosophy.—See pages 87-95.

Bachelor of Arts in Education with a teaching field in Chemistry.—Prerequisite: the Education curriculum, page 76.

Required: the Chemistry option and professional courses listed in the School of Education Catalogue.

FIRST GROUP

3-4 Fundamentals of Physical Science (4-4)

A year course; credit is not given for the first half until the second half is completed. Lecture (3 hours), laboratory (3 hours). Selected topics from chemistry, physics, and biology. Schmidt, Elbert

astronomy, and geology are integrated to introduce the nonscience major to the basic methods and achievements of physical science. Laboratory fee, \$11 a semester. (Academic year—day; summer 1964.)

11-12 General Chemistry (4-4)

The Staff

A year course; credit is not given for the first half until the second half is completed. Lecture (2 hours), laboratory (4 hours), recitation (1 hour). Elementary course in general chemistry. Prerequisite: one year of high school algebra. Laboratory fee, \$18 a semester. (First half: fall—day and evening; summer 1964. Second half: spring—day and evening; summer 1964.)

13-14 General Chemistry (4-4)

White

A year course; credit is not given for the first half until the second half is completed. Lecture (2 hours), laboratory (4 hours), recitation (1 hour). A terminal course in general chemistry for students in the School of Engineering and Applied Science. Prerequisite: Physics 1-2; Mathematics 21 or 25. Laboratory fee, \$18 a semester. (Academic year—day and evening.)

15 General Chemistry (Accelerated) (4)

Naeser

Lecture (3 hours), laboratory (3 hours), recitation (1 hour). An intensive one semester course in general chemistry. Prerequisite: high school chemistry accompanied by laboratory work and a satisfactory grade on either the College Entrance Examination Board Achievement Test in Chemistry or on the placement examination given by the Department of Chemistry prior to registration, and high school physics. Laboratory fee, \$13. (Fall—day.)

21 Qualitative Inorganic Analysis (4)

Vincent

Lecture (2 hours), laboratory (6 hours). Theoretical and practical study of methods of separating and identifying the more common cations and anions using semi-micro techniques. Prerequisite: Chemistry 12 or 15, or a placement examination which may be waived at the discretion of the instructor. Laboratory fee, \$18. (Fall—day and evening; spring—day; summer 1964.)

22 Elementary Quantitative Analysis (4)

Schmidt

Lecture (2 hours), laboratory (6 hours). Theory and practice of quantitative analysis by classical volumetric and gravimetric methods and introduction to instrumental analysis. Prerequisite: Chemistry 21. Laboratory fee, \$18. (Fall—day; spring—day and evening; summer 1964.)

SECOND GROUP

111 Physical Chemistry (3)

Wood

Gas Laws, chemical thermodynamics, solution chemistry, chemical equilibria, and other topics are introduced. Prerequisite: Chemistry 22; Mathematics 24; Physics 1-2 or former 13, 14, or 15. (Fall—day and evening; summer 1964.)

112 Physical Chemistry (3)

Wood

Chemical kinetics, chemical statistics, electrochemistry, and other topics are introduced. Prerequisite: Chemistry 111. (Spring—day and evening.)

113 Physical Chemistry Laboratory (2)

The Staff

The laboratory complement of Chemistry 111; previous satisfactory completion of or concurrent registration for Chemistry 111 is required. Laboratory fee, \$18. (Fall—day and evening; summer 1964.)

116 Physicochemical Measurements (3)

The Staff

An integrated laboratory work associated with Chemistry 112 and 113; principles and applications of physicochemical methods and instruments to problems in chemical thermodynamics and kinetics and in structural and analytical chemistry. Prerequisite: Chemistry 111, 113. Prerequisite or concurrent registration: Chemistry 112, 122. Laboratory fee, \$18. (Spring—day and evening.)

- 122 *Instrumental Analysis Lectures* (2) Schmidt
Theory of instrumental methods in qualitative and quantitative analysis, determination of structure, and study of reaction mechanisms with emphasis on electroanalysis, spectrophotometry, and chromatography. Correlated with laboratory course: Chemistry 116. Prerequisite: Chemistry 22, 111, 113. Concurrent registration: Chemistry 112, 116. (Spring—day and evening.)
- 134 *Descriptive Inorganic Chemistry* (3) Naeser
An intermediate level course emphasizing the descriptive chemistry of the elements. Prerequisite: Chemistry 22, 151, 111. (Spring—day.)
- 135-36 *Inorganic Chemistry: Preparations* (2-2) Perros
Application of the technique of inorganic chemistry to the preparation and purification of a list of selected substances. Prerequisite: Chemistry 152. Prerequisite or concurrent registration: Chemistry 134. Laboratory fee, \$18 a semester. (First half: fall—evening, spring—day. Second half: fall—evening.)
- 151-52 *Organic Chemistry* (4-5) Wrenn, Sager
A year course: credit is not given for the first half until the second half is completed. Chemistry of the compounds of carbon. Prerequisite: Chemistry 21* and high school Physics or Physics 1. Laboratory fee: Chemistry 151, \$12; Chemistry 152, \$20. (First half: fall—lecture (3 hours), laboratory (3 hours), day and evening; summer 1964. Second half: spring—lecture (3 hours), laboratory (6 hours), day and evening; summer 1964.)
- 153 *Special Laboratory in Organic Chemistry* (1) Wrenn, Sager
A course designed to give the chemistry major additional and broader training in the technique of organic chemistry than is obtained in Chemistry 151-52. Prerequisite or concurrent registration: Chemistry 22, 152. Laboratory fee, \$12. (Chemistry 155 may be substituted for this course.) (Spring—day and evening.)
- 155 *Organic Chemistry: Preparations* (2 or 3) Wrenn
Synthesis of organic compounds and application of the technique of organic chemistry to the preparation of pure compounds, using larger amounts and greater refinement than in Chemistry 151-52. Prerequisite: Chemistry 22, 152. Laboratory fee, \$10.00 a semester hour. (Spring—evening.)
- 156 *Qualitative Organic Analysis* (1) Wrenn
Lecture (1 hour), laboratory (6 hours). Identification of pure organic compounds, separation of mixtures, and identification of their components. Required of all students planning thesis work in organic chemistry. Prerequisite: Chemistry 22, 152. Laboratory fee, \$18. (Fall—evening.)
- 191 *History of Chemistry* (2) Perros (1965-66)
Historical development of chemistry. Prerequisite: Chemistry 22, 152. and alternate years.)
- 193 *Chemical Literature* (1) Wrenn
A general course in chemical literature with reference work and reports. Prerequisite: Chemistry 22, 152. Prerequisite or concurrent registration: Chemistry 111, 112. Fall—evening.

THIRD GROUP†

- 203 *Chemical Kinetics* (2) Wood
The rates of chemical reactions and the factors influencing them. Prerequisite: Chemistry 112. (1965-66 and alternate years.)
- 211-12 *Physical Chemistry* (2-1) Wood
Same as Chemistry 111 and 112. Admission only by departmental permission. Credit will be assigned only upon the satisfactory completion of Chemistry 213. (1965-66 and alternate years.)

* This prerequisite may be waived in the case of the student who has earned a grade of C or better in Chemistry 12 or 15 within the past two years or by a placement examination.

† The appropriate qualifying examination is prerequisite to all "Advanced" courses.

213 Chemical Thermodynamics (3)

Wood

Application of thermodynamics to chemical problems. Thermochemistry, homogeneous and heterogeneous equilibria, statistical calculation of thermodynamic properties, electrochemistry. Prerequisite: (1) grade A or B in Chemistry 111 and 112, or (2) Satisfactory in Chemistry 211-12, or (3) qualifying grade in physical chemistry qualifying examination. (Fall—evening.)

216 Statistical Mechanics as Applied to Chemistry (3)

Sager

An introduction to classical and quantum statistics designed to acquaint the student with the basic principles and application of the method. Prerequisite or concurrent registration: Chemistry 213 or permission of instructor. (1964-65 and alternate years: fall—evening.)

217 Chemical Bonding (2)

Sager

A survey of modern developments in the theory of valence with emphasis on application to problems of stability and structure of complex molecules. Prerequisite: Chemistry 213 or permission of instructor. (1964-65 and alternate years: spring—evening.)

219-20 Spectrochemistry I-II (3-3)

Filipeacu

A study of the energetic states of molecules under the influence of electromagnetic radiation leading to photochemical reactions or to spectroscopic phenomena. Prerequisite to Chemistry 119; Chemistry 112. Prerequisite to Chemistry 220; Chemistry 112 and 152. (1964-65 and alternate years: academic year—evening.)

221-22 Advanced Analytical Chemistry* (2 or 3-2 or 3)

Eargle, Schmidt

Lecture (2 hours), laboratory (3 hours—optional). Theory and application of recent spectrometric methods of analysis including electrical, magnetic, and optical instrumentation. Prerequisite: Chemistry 22, 122, and qualifying examination. The lectures may be taken for 2 credits a semester without laboratory work, either half may be taken first. Laboratory fee, \$11 a semester. (First half: not offered 1964-65. Second half: fall—evening.)

231-32 Special Topics in Inorganic Chemistry (2-2)

White, Perros

A series of one-semester courses covering such topics as: (1) chemistry of the less familiar elements, (2) organometallic, organosilicon, and carbonyl compounds, and (3) co-ordination chemistry. Prerequisite: Chemistry 134 or 235. (Academic year—evening.)

234 Radiochemistry (2)

Schwebel

The preparation, properties, and uses of radioactive isotopes, both natural and artificial. Prerequisite: Chemistry 235-36. (1964-65 and alternate years: fall—evening.)

235-36 Advanced Inorganic Chemistry* (3-2)

White

Application of modern chemical theories to inorganic substances and reactions, followed by a detailed study, developed from the periodic table, of the chemistry of the more common elements. Prerequisite: Chemistry 152 and qualifying examination. Prerequisite or concurrent registration: Chemistry 111, 112. (Academic year—evening.)

251-52 Advanced Organic Chemistry* (3-3)

Sager

Synthesis, reactions, and properties of carbon compounds; fundamental theories of organic chemistry. Prerequisite: Chemistry 152 and qualifying examination. Prerequisite or concurrent registration: Chemistry 111, 112. (Academic year—evening.)

253 Advanced Synthetic Organic Chemistry* (3)

Wyrton

Study of reactions employed in the synthesis of organic compounds. Prerequisite: Chemistry 251. (Spring—evening.)

257 Theoretical Organic Chemistry (3)

Sager

Survey of modern theories of organic chemistry with emphasis on reaction mechanisms. Prerequisite: Chemistry 252. (1964-65 and alternate years.)

*The appropriate qualifying examination is prerequisite to all "Advanced" courses.
†Appointment effective September 1964.

259-60 Polymer Chemistry (3)

A study of the preparation, properties, and structure of macromolecules. Prerequisite: Chemistry 112 and 152. (1964-65 and alternate years: academic year—evening.)

Filipescu

291-92 Seminar: Recent Developments in Chemistry (1-1)

(Academic year—day.)

The Staff

295-96 Research (arr.)

Research on problems approved by the Staff. Open to qualified students with advanced training. Laboratory fee, \$7.50 a semester hour. (Academic year—as arranged; summer 1964.)

The Staff

299-300 Thesis (3-3)

Laboratory fee, \$18 a semester.

(Academic year—as arranged; summer 1964.)

The Staff

Chinese

See "Classical Languages and Literatures", below.

Classical Languages and Literatures^{*}

Professor J. F. Latimer (Chairman)

Associate Professorial Lecturer J. C. Wang

Lecturer A. B. Seidman

Associate D. B. Boers

Bachelor of Arts with a major in Latin (Departmental).—Prerequisite: the Arts and Letters curriculum, page 70, including Latin 51-52 and History 39-40.

Required, in addition to the general requirements, pages 76-80, eighteen semester hours in Latin beyond first-year courses, Art III, Philosophy III. A reading knowledge of French or German, preferably both, is strongly recommended.

Latin 1-2 and 3-4, or Greek 11-12 and 13-14 satisfies the foreign language requirement; see page 69.

LATIN AND GREEK

FIRST GROUP

1-2 First Year Latin (3-3)

A year course; credit is not given for the first half until the second half is completed. Functional presentation of the essentials of the language, with appropriate reading.

The Staff

* The Staff of Instruction is for the academic year; 1963-64.

lections; development of English derivatives; introduction to Roman life and literature. (Academic year—day.)

3-4 *Second-year Latin* (3-3)

Beers

A year course: credit is not given for the first half until the second half is completed. A continuation of the first year course, but with increased emphasis on Latin readings which illustrate Roman life and literature; continuation of vocabulary building in English. Prerequisite: Latin 1-2 or two years of high school Latin. (Academic year—evening.)

11-12 *First-year Greek* (3-3)

Beers

A year course: credit is not given for the first half until the second half is completed. Essentials of grammar with appropriate reading selections. (Academic year—evening.)

13-14 *Second-year Greek* (3-3)

Latimer

A year course: credit is not given for the first half until the second half is completed. Review of grammar; rapid reading from selected Greek authors. (1965-66 and alternate years.)

49-50 *Latin Grammar and Readings* (3-3)

The Staff

Primarily for graduate students preparing for reading examinations. Undergraduates admitted by permission of the instructor. No academic credit for graduate students. First half: essentials of Latin grammar with appropriate reading selections. Second half: continuation of grammar with selections from various Latin authors for rapid reading. (Academic year—as arranged.)

51-52 *Introduction to Latin Prose and Poetry* (3-3)

Latimer

Selections from Cicero and Caesar, Virgil and Ovid. Prerequisite: Latin 3-4 or three years of high school Latin. (Academic year—day.)

SECOND GROUP

101-2 *Roman Comedy* (3-3)

The Staff

Selected plays from Plautus and Terence. Prerequisite: Latin 51-52 or permission of the Instructor. (1965-66 and alternate years.)

111-12 *Roman History and Philosophy* (3-3)

Latimer

Selections from Cicero, Sallust, Lucretius, and Livy. Prerequisite: Latin 51-52 or permission of the Instructor. (Academic year—day.)

121-22 *Roman Lyric Poetry and Satire* (3-3)

The Staff

Selections from Catullus, Horace, Juvenal, and Martial. Prerequisite: Latin 101-2 or permission of the Instructor. (1965-66 and alternate years.)

COURSES IN ENGLISH TRANSLATION

FIRST GROUP

71-72 *Greek and Roman Backgrounds in Literature* (3-3)

Latimer

Selected Greek and Roman masterpieces and their literary influence. This course satisfies the literature requirement. (See 1*) footnote, page 265. First half: spring—day. Second half: fall—day.)

SECOND GROUP

100-110 *Greek and Roman Drama* (3-3)

Selected tragedies of Aeschylus, Sophocles, Euripides, and Seneca; selected comedies of Aristophanes and Menander, Plautus and Terence; historical development of classical drama. (1965-66 and alternate years)

Latimer

CLASSICAL HEBREW

FIRST GROUP

21-22 *First-year Classical Hebrew* (3-3)

A year course; credit is not given for the first half until the second half is completed. Fundamental principles of the language with practice in reading simple narrative prose. (Academic year—day)

Seidman

23-24 *Second-year Classical Hebrew* (3-3)

A year course; credit is not given for the first half until the second half is completed. Review of grammar and exegesis of selected passages from the Hebrew text of the Old Testament. (1965-66 and alternate years)

Seidman

CHINESE (MANDARIN)

FIRST GROUP

31-32 *First-year Chinese* (3-3)

A year course; credit is not given for the first half until the second half is completed. For beginners. Pronunciation, conversation, reading, writing basic Chinese characters. Aural training, oral practice in electronic language workshop. Workshop fee, \$6 a semester. (First half: fall—evening; summer 1964. Second half: fall and spring evening; summer 1964.)

Wang

33-34 *Second-year Chinese* (3-3)

A year course; credit is not given for the first half until the second half is completed. Continuation of grammar and spoken Chinese, more emphasis on the written language. Reading, writing commonly used Chinese characters, reading selected writings. Aural training, oral practice in electronic language workshop. Workshop fee, \$6 a semester. Prerequisite: Chinese 31-32 or the equivalent. (First half: fall and spring evening; Second half: spring—evening)

Wang

RELATED COURSES IN OTHER DEPARTMENTS

Art 101 *Greek and Roman Architecture* (3)

Art 102 *Greek and Roman Sculpture* (3)

Art 111 *Classical Archeology* (3)

Education 141 *Teaching Latin* (3)

Philosophy 111 *History of Philosophy* (3)

Dermatology*

Professor R. S. Higdon, (Chairman)

Clinical Professors J. Q. Cant, Jr., E. B. Helwig

Associate Clinical Professors L. S. Leland, Hayden Kirby-Smith

Assistant Clinical Professors W. G. Ballinger, C. S. Brown, Reuben Goodman, Manuel Landman

Clinical Instructors H. G. Bryan, P. L. Repetto, Jr., Phyllis Huene, Donald Mitchell

214 Dermatology and Syphilology

Lectures on diseases of the skin and syphilis. (Spring—2 hours a week for eight weeks.) The Staff

317-18 Clinic

Case demonstrations, diagnosis, and treatment of skin diseases and syphilis. D. C. General Hospital. (Academic year—2 hours a week as arranged.) The Staff

367-68 Dermatology Conference

Lectures on diseases of the skin. (One hour a week for eight weeks, during the University Clinics clerkship.) Higdon

407-8 Clinic

Dermatology and syphilology in infants and children. Children's Hospital. (Two hours a week as arranged in rotation during academic year.) The Staff

409-10 Clinic

Clinical demonstrations, diseases of the skin. University Hospital. (Two hours a week as arranged in rotation during academic year.) The Staff

Economics*

Professors A. E. Burns, D. S. Watson, T. W. Holland, J. W. Kendrick, W. E. Schmidt, S. Levitan (Research), J. W. Skinner (Chairman), C. T. Stewart, Jr. (Research), C. E. Calbreath

Professorial Lecturer R. E. Moon

Associate Professors Henry Solomon (Research), Joseph Aschheim, R. P. Sharkey

Associate Professorial Lecturers R. L. Sammons, D. J. Edwards

Assistant Professors Ching-Yao Hsieh, S. J. Hunter, L. D. Bothwell, Mary Holman (Research)

Lecturers Paul Gekker, S. E. Haber

Bachelor of Arts with a major in Economics (Departmental)—Prerequisite: the Arts and Letters curriculum, page 70, including Economics I-2 and Statistics 51.

Required: the general requirements, pages 76-80, and (1) Economics 101-2 and 121 and fifteen additional hours in second group courses to be selected with the approval of the Staff of Instruction for the academic year 1963-64.

* On leave of absence 1963-64

the adviser; (2) Economics 192 which may be taken upon the completion of Economics 101-2 and 121; (3) Statistics 111, 112; (4) nine semester hours of other second-group courses selected with the approval of the adviser.

Bachelor of Arts with a major in Latin American Civilization (Field of Study).—See the Department of History.

Master of Arts in the field of Economics.—Prerequisite: the degree of Bachelor of Arts with a major in Economics at this University, or the equivalent.

Required: the general requirements, pages 83-85, including Economics 210, at least nine semester hours in economic theory, and a thesis (Economics 299-300).

Doctor of Philosophy.—See pages 87-95.

Master of Arts in Government with a major in Economic Policy.—Prerequisite: an undergraduate major in Economics at this University, or the equivalent. See pages 168-69, 170-71, 172-73.

FIRST GROUP

1-2 Principles of Economics* (3-3)

Lecture (2 hours), recitation (1 hour). Survey of the major economic principles, institutions, and problems in contemporary life. Economics 1 is prerequisite to Economics 2. (First half: fall and spring—day and evening; summer 1964. Second half: fall—evening; spring—day and evening; summer 1964.)

Skinner and Staff

SECOND GROUP

101-2 Economic Analysis (3-3)

Analysis of demand, supply, and pricing; theory of national income determination. (First half: fall—day and evening; spring—evening; summer 1964. Second half: fall—day; spring—day and evening; summer 1964.)

The Staff

104 History of Economic Thought (3)

History of the major schools of economic thought; influence of changing problems on the development of economic theory. (Spring—day.)

Burns

105 Business Cycles (3)

Description and analysis of the facts of economic instability, survey of recent business cycle theory, forecasting, and consideration of counter-cyclical policies. (Fall—evening.)

Kendrick

121 Money and Banking (3)

Theory of money, credit, and banking; commercial banking and the Federal Reserve System; other financial institutions; international aspects of money; current financial problems. (Fall—day and evening; spring—evening; summer 1964.)

Hunter

123 Monetary Theory and Policy (3)

Principal contemporary theories, background of recent monetary policy. (Fall—day.)

Hunter

133 The Economy of the Soviet Union (3)

Development and main features of the economic life of the Soviet Union. (See History 145-46 and Geography 166.) May be taken for graduate credit with the approval of the instructor. (Fall—evening.)

Gekker

141 Unionism and Collective Bargaining (3)

The development and characteristics of American unionism and collective bargaining as economic and social institutions, appraisal of economic and social aspects, policies and controls. (Fall—day.)

Hollist

* Economics 1-2 is prerequisite to all other courses in Economics.

- 142 Labor Economics (3)** Holland
Characteristics of the American labor force, operations of labor markets, wage theories and practices, impact of collective bargaining, causes and characteristics of unemployment, public policies and programs. (Spring—day.)
- 161-62 Public Finance and Taxation (3-3)** The Staff
General survey of government expenditures; sources and methods of taxation; economic effects of expenditures, taxes, and of government debt policies. (Academic year—evening.)
- 165 Government Control of Economic Activity (3)** Watson
Changing role of government in promoting and regulating economic activity, types and spheres of control. (Fall—day.)
- 181-82 International Economics (3-3)** Aschheim
First half: survey of the theory of international trade, factor movements, and balance-of-payments adjustment. Second half: analysis of modern international economic problems including problems of less developed countries. (Academic year—day and evening.)
- 185-86 Economic History and Problems of Latin America (3-3)** The Staff
Evolution of the economies of Latin America with particular emphasis on present structures and problems, considered in the regional, country, and sub-region contexts. Economics 185, special attention to Middle America; Economics 186, special attention to South America. (Academic year—evening.)
- 198 Proseminar in Economics (3)** Skinner
Comprehensive survey of economics. Prerequisite: Economics 101-2 and 121. (Fall and spring—as arranged.)

THIRD GROUP

- 201-2 History and Literature of Economic Thought (3-3)** Burns
Critical analysis and interpretation of the development and the literature of economic thought, origins, and problems, of the major types of theory, and their relation to present problems and policies. (Academic year—evening.)
- 203-4 Contemporary Price Theory (3-3)** Watson
The theory of relative prices from Marshall to the present. (Academic year—evening.)
- 205 Theory of Employment and Income (3)** Kendrick
Determinants of the level of employment and income: Keynesian and classical systems contrasted, and recent literature on the subject. (Fall—evening.)
- 206 Business Cycle Analysis (3)** Kendrick
Empirical analysis of American business cycles; evaluation of the methodology and findings of the National Bureau of Economic Research. Statistical tests of theories of the business cycle. (Spring—evening.)
- 208 The National Income (3)** Kendrick
The theory of economic aggregates; measurement and policy aspects of national income. (Spring—evening.)
- 210 Seminar in Economics (3)** Skinner
Methodology of economics, integration of economic theories, methods of research. Open only to students who have completed fifteen hours of graduate work in economics. (Academic year—evening.)
- 212 Seminar in Price Theory (3)** Watson
Advanced topics in the theory of relative prices. Prerequisite: Economics 203-4 or the equivalent. (Fall—evening.)

- 213 *Economic Thought in the 20th Century* (3)
Continuation of Economics 201-2. The principal trends in economic thought during the present century. (Fall—evening.) Burns
- 215-16 *Mathematical Economics* (3-3)
Introduction to the uses of mathematics in economic theory. (Academic year—evening.) Solomon
- 217-18 *Survey of Economics* (3-3)
Survey of economic analysis and policy. Not open to graduate students in economics or economic policy. (Academic year—evening.) Watson
- 219 *Managerial Economics* (3)
Analysis of price, production, and inventory policies of business firms. (Not offered.) Watson
- 221-22 *Monetary Theory* (3-3)
Contemporary monetary theories. (Academic year—evening.) Hunter
- 223-24 *Monetary Policy and Central Banking* (3-3)
The money system in its relation to national income, monetary policies of the Federal Reserve and other central banking systems. (Academic year—evening.) Aschheim
- 231-32 *Quantitative Economics* (3-3)
Selected topics in quantitative economics. (Academic year—evening.) Solomon
- 241 *Unionism, Collective Bargaining, and Labor Economics* (3)
An accelerated introductory course in labor economics primarily for graduate students in Personnel Administration. (Fall—evening.) Holland
- 244 *Problems in Unionism, Collective Bargaining, and Labor Economics* (3)
Concentrated study of selected economic, social, and legal aspects of labor relations in labor economics. (Spring—evening.) Holland
- 246 *Foreign Labor Movements* (3)
Labor in the economic, social, and political structures of selected foreign countries. Contrasts and comparisons with the United States. (Spring—evening.) Holland
- 247 *Labor Relations in the Federal Service* (3)
Admission by permission of the instructor. (Fall and spring—evening.) Holland
- 251-52 *Economic Development* (3-3)
The theories and problems of economic growth with special attention to the underdeveloped countries. (Academic year—evening.) Kendrick
- 253 *Productivity Analysis* (3)
Concepts and measures of productivity; relations to economic growth and to structural changes in the American economy. (Fall—evening.) Meier
- 261-62 *Public Finance and Fiscal Policy* (3-3)
Special problems in contemporary public finance and fiscal policy. (Academic year—evening.) The Staff
- 263-64 *Theory of Public Finance* (3-3)
Criteria for the allocation of government expenditures, principles of taxation, fiscal policy for stable growth. (Academic year—evening.) Watson
- 265-66 *Theory of Economic Policy* (3-3)
The nature, forms, methods, and objectives of economic policy; the relation of economic theory to economic policy. (Academic year—evening.) Gekker
- 267 *The Soviet Economy* (3)
Development of the Soviet-type economy; organization, policies, and problems; monetary, fiscal, production, allocative, foreign trade, economic growth. (See also History 145-46, 247-48, and Geography 166.) (Spring—evening.)

281-82 International Economics (3-3)

First half: the theory of international trade and factor movements. *Second half:* the theory of balance-of-payments adjustment. (Academic year—evening.)

284 United States Foreign Economic Policy (3)

Schmidt

Analysis of foreign aid programs; international, commercial, and monetary policy of the United States; United States and international economic organization. (Not offered 1964-65.)

285-86 Economic Development of Latin America (3-3)

Summons

Current policies and programs; capital formation, public and private; foreign loans and investment; social and technological preconditions of investment. (Academic year—evening.)

287-88 Latin America: Trade and Commodity Policy (3-3)

Tariffs and exchange control systems; bilateral and general commercial agreements; terms of trade. (Not offered 1964-65.)

290 Seminar in International Economics (3)

Schmidt

Advanced topics in international economics. Prerequisite: Economics 281-82 or the equivalent. (1965-66 and alternate years: spring—evening.)

299-300 Thesis (3-3)

The Staff

(Academic year—as arranged; summer 1964.)

COURSES OFFERED IN SPECIAL PROGRAMS

In addition to the regular courses announced above, the University offers the following economics courses for students enrolled in Navy Graduate Financial Management Program and Air Force Advanced Management Program.

191 Foreign Economic Policies and Problems (3)**195 Governmental and Industrial Economics (3)****Education***

Professors B. S. Root (*Chairman*), G. L. Angel, W. T. Carroll, F. N. Hamblin

Professorial Lecturers Madeline Rorinstein, H. O. Johnson, Anthony Marinaccio, C.

D. Henskins, J. B. Holden, J. P. Walsh, D. D. Darnand, K. E. Brown, J. C. Lang,

J. F. Rogers, H. M. Wilson, R. A. Edelfelt, H. H. Kempler

Associate Professors Mary Coleman, W. A. McCauley, Carol St. Cyr, H. G. Detwiler,

E. E. Baker, Martha Rashid, M. G. Bilsky

Associate Professorial Lecturers LuVorne Walker, Eugenia Nowlin, Beverly Crump,

Mary Scott, John Giannaspro, Helen Mitchell, J. L. Cameron, Samuel Kavrack,

Zohar Kosh, C. O. McDaniels, J. W. Suber, W. E. Amos, Sylvia Gerber

Assistant Professors R. W. Eller, J. G. Boswell, Margaret McIntyre

Lecturers Ward Whipple, Joanne Parker, R. J. Kubalak, S. R. Westerlund, Florence

Reidling, Clarke Trumble, R. L. Williams, Maxine Teetsel, Mary Tronone

*The Staff of Instruction is for the academic year 1963-64.

FIELD STUDIES

Director J. W. Charles, Assistant Director M. H. Jessup

FIELD SERVICE COORDINATORS

Alexander Anderson, *Assistant Principal, Washington Lee High School, Arlington, Va.*; Mary Maré, *Assistant Principal, Dean of Girls, Wakefield High School, Arlington, Va.*; C. M. Richmond, *Principal, Stratford Junior High School, Arlington, Va.*

Bachelor of Arts in Education.—Prerequisite: the Education curriculum, page 72, or the equivalent, or a certificate of graduation from an approved normal school or the equivalent. Required: the satisfactory completion of a program of at least sixty-six semester hours in addition to the general education background courses, page 72. Each program is planned individually to meet the certification requirements of the student, see pages 144-45 and the School of Education Catalogue.

Master of Arts in Education.—Prerequisite: a Bachelor's degree from an accredited institution. Programs are planned individually. The following areas of specialization are available: (1) adult education, (2) classroom teaching—to include strengthening mastery of teaching field, (3) comparative education, (4) curriculum, (5) elementary education, (6) employer training, (7) guidance, (8) history of education, (9) philosophy of education, (10) reading, (11) school administration—secondary or elementary school principalship, (12) secondary education, and (13) physical education. (See pages 148-50.)

Advanced Professional Certificate.—See pages 150-51

Education Specialist.—See pages 151-52

Doctor of Education.—See pages 152-54

A Reading Clinic

Diagnosis of reading difficulties; individual or group lessons without academic credit. Fee for individual diagnosis, \$45; for individual instruction, \$6 a lesson; for semi-individual instruction, \$8 a lesson; for instruction in small groups with common reading difficulties, \$3.75 (\$3.25 for students currently registered in the University).

Coleman and Staff

SECOND GROUP

108 Human Development, Learning, and Teaching (13)

Lecture (2 hours), conference (1 hour), field work (2 hours). For the general student as well as the prospective teacher. Principles of effective teaching based on an understanding of human development and the nature of learning. Prerequisite: Psychology 12 or 13. (Fall and spring, day and evening; summer 1964.)

McIntyre

111 Methods in Elementary Education (12)

For seniors in the elementary school curriculum. Methods, materials, approaches, and field experiences in elementary schools. Problems and procedures in teaching the language arts (including reading, literature for children, oral and written expression, spelling, and handwriting), arithmetic, science, and social studies. Planning, work, general classroom procedures, and evaluation of pupil progress. Observation and participation two mornings a week. Prerequisite: Education 108 and 123. (Fall and spring.)

McIntyre and Staff

112 Educational Measurement (13)

Scope, needs, services to students, selection and construction of teacher-made tests, interpretation of tests for evidence purposes. Prerequisite: Education 108 and 123. (Fall—day; spring—evening; summer 1964.)

McCauley

- 113 Elementary School Art (3)** Nowlin
For undergraduates in the elementary school curriculum. Materials and methods. Prerequisite: Psychology 1 and 22, or 121. Material fee, \$4.50. (Fall and spring: lecture and laboratory (3 hours)—evening, field work—as arranged; summer 1964 (Crump).)
- 114 Elementary School Music (3)** Mitchell
For undergraduates in the elementary school curriculum. Materials and methods. Prerequisite: Psychology 1 and 22, or 121. (Fall and spring: lecture (2 hours)—evening, field work (2 hours)—as arranged; summer 1964.)
- 115 Teaching of Reading in the Elementary School* (3)** Parker
A basic course in methods, techniques, materials, and activities essential to a good elementary school reading program. Prerequisite: Education 108 and 123 or teaching experience. (Spring: lecture (2 hours)—evening, field work (2 hours)—as arranged; summer 1964.)
- 116 Elementary School Social Studies* (3)** Trundle
For teachers. Content, methods, materials, and activities essential in the elementary school curriculum. Prerequisite: Education 108 and 123 or teaching experience. (Fall: lecture (2 hours)—evening, field work (2 hours)—as arranged; summer 1964.)
- 117 Elementary School Science* (3)** St. Cyr
For teachers. Content, methods, materials, and activities essential in the elementary school curriculum. Prerequisite: Education 108 and 123 or teaching experience. (Spring: lecture (2 hours)—evening, field work (2 hours)—as arranged; summer 1964.)
- 120 Elementary School Arithmetic* (3)** St. Cyr
For teachers. Content, methods, materials, and activities essential in the elementary school curriculum. Prerequisite: Education 108 and 123 or teaching experience. (Fall: lecture (2 hours)—evening, field work (2 hours)—as arranged; summer 1964 (Baker).)
- 121 Society and the School (3)** St. Cyr, Boswell
Lecture (2 hours), conference (1 hour), field work (2 hours). For the general student as well as the prospective teacher. Historical and sociological development of education at the local, national, and international levels; cooperation of the school with other community agencies; organization and operation of schools; functions of school personnel. (Fall and spring—day and evening; summer 1964.)
- 128 Children's Literature* (3)** Walker
For teachers. Exploring and evaluating the newer books for children and the children's classics; understanding the contribution of literature in child development, appreciating children's original expressions. Prerequisite: Psychology 1 and 22. (Spring: lecture (2 hours)—evening, field work (2 hours)—as arranged; summer 1964 (McIntyre).)
- 131 Principles and Methods of Secondary School Teaching (3)** Boswell, Myers, Stallings
Lecture (2 hours), field work (2 hours). For seniors in the secondary school curriculum. Course, unit, and lesson planning; practical techniques used in connection with motivation, the assignment, group procedures, directing study, individual differences, evaluation, clerical routines, discipline, the homeroom, activity sponsorship, public relations. Prerequisite: Education 106 and 123. (Fall and spring—day.)
- 134 Student Teaching in Secondary Schools (6 to 9)** Boswell and Staff
For seniors in the secondary school curriculum. Sections A, B, and C are for academic majors. Section D is for physical education majors (Myers, Stallings). Student teaching fee, \$5.00. Admission by permission of the instructor. Prerequisite: Education 106 and 123. (194A) fall and spring—as arranged. 194B, 194C, 194D—spring—as arranged.)

* This course may not be taken by students who have completed or who plan to enroll in Education 111.

135 *Student Teaching in Elementary Schools* (9)

McIntyre

For seniors in the elementary school curriculum. Student teaching fee, \$50. Admission by permission of the instructor. Prerequisite: Education 108 and 123. (135A and 135B: spring—as arranged.)

SPECIAL METHODS COURSES*

To be elected in the senior year after substantial preparation in the teaching fields concerned by the students in the secondary school curriculum. Course requirements and hours of credit vary with license requirements. Practices of successful teachers are studied and actual teaching content as found in current texts and courses of study is reviewed.

136 *Teaching English in Secondary Schools* (2 to 4)

Williams

Prerequisite*: 18 semester hours in English. (Spring: lecture (2 hours)—evening, field work (2 hours)—as arranged; summer 1964.)

137 *Teaching Speech* (2 to 4)

Kosh

Prerequisite*: 18 semester hours in Speech or the permission of the instructor. (Spring: lecture (2 hours)—evening, field work (2 hours)—as arranged.)

138 *Teaching Social Studies in Secondary Schools* (2 to 4)

Boswell

Prerequisite*: 24 semester hours of social studies. (Spring: lecture (2 hours)—evening, field work (2 hours)—as arranged; summer 1964.)

139 *Teaching Art in Secondary Schools* (2 to 4)

Teller

Prerequisite*: 24 semester hours of Art. (Spring: lecture (2 hours), laboratory (2 hours)—afternoon.)

140 *Teaching Mathematics in Secondary Schools* (2 to 4)

Brown

Prerequisite*: Mathematics through calculus. (Spring—evening.)

141 *Teaching Latin** (3)

Gosher

Consideration of objectives in teaching Latin; construction of courses of study; techniques of motivation, presentation, and drill; areas of enrichment. Designed for both junior and senior high school teaching. (Spring—evening; summer 1964.)

142 *Teaching Music in Secondary Schools* (2 to 4)

Prerequisite*: 24 semester hours of Music. (Spring—as arranged.)

143 *Teaching Science in Secondary Schools* (2 to 4)

Eller

Prerequisite*: 24 to 30 semester hours of science. (Spring: lecture (2 hours)—evening, field work (2 hours)—as arranged.)

146 *Teaching Foreign Languages* (2 to 4)

McSpadden

Prerequisite*: 18 semester hours of one foreign language. (Spring—day.)

150 *Teaching Business Subjects* (2 to 4)

Tronzo

Prerequisite*: 30 semester hours of business education. (Spring—as arranged.)

THIRD GROUP†

201 *Seminar: Foundations of Education* (3)

The Stud

Designed to refresh previous study and to give additional depth of knowledge in the historical, philosophical, sociological, psychological, evaluation, measurement, and research foundations of education; and to guide study for the Master's degree comprehensive examination in these areas. (Fall and spring—evening.)

* Prerequisite to all special methods courses: Education 108, 123, and 131. Additional prerequisites are stated under each course.

† A degree from an accredited institution is prerequisite to all third-group courses.

- 203-4 *Comparative Education* (3-3) Kempfer
Comparison of foreign educational systems with those of the United States, particularly those of Russia, West Germany, Denmark, Switzerland, France, the British Isles, Canada, and Australia. (Academic year—evening.)
- 205-6 *The Curriculum** (3-3) St. Cyr
For experienced teachers. *First half:* curriculum foundations and issues; comparison of curriculum patterns. *Second half:* principles and procedures in curriculum development; group consideration of student problems. (Academic year—evening.)
- 207 *Curriculum Materials** (3) St. Cyr
For experienced teachers. Construction of courses of study, resource units, classroom teaching aids, and inexpensive materials; direct application to students' own situations. (Summer 1964.)
- 208 *Human Development, Learning, and Teaching* (3) Lang
Lecture (2 hours), conference (1 hour), field work (2 hours). For graduate students. Principles of effective teaching based on an understanding of human growth and development and the nature of learning. Prerequisite: Psychology 1 and 22, or 121. (Fall and spring—evening.)
- 209 *Child Growth and Development* (3) Rashid
An interdisciplinary approach to child development is emphasized. Special attention is given to the analysis, interpretation, and practical implications for instruction of significant research in the various disciplines which have contributed most to the knowledge of child development. (Fall—evening.)
- 210 *Adolescent Growth and Development* (3) Rashid
An interdisciplinary approach to adolescent growth and development is emphasized. Particular attention is given to the analysis, interpretation, and practical implications for instruction of significant research in the various disciplines which have contributed most to the knowledge of the adolescent. (Spring—evening.)
- 212 *Educational Measurement* (3) McCauley
Basic measurement techniques; construction, selection, administration, and interpretation of objective and essay-type examinations; statistical analysis of test results; laboratory experiences in the use of test instruments. (Fall—evening.)
- 213-14 *History of Education* (3-3) Wilson
First half: the European backgrounds of American education. *Second half:* the evolution of the American school system. (Academic year—evening.)
- 215 *Education of Exceptional Children** (3)
For classroom teachers. A survey of current problems in the education and guidance of exceptional pupils. Nature and needs of those physically, mentally, or emotionally handicapped; needs of the gifted. Resources for help in correction, diagnosis, therapy, education, and guidance. (Not offered 1964-65.)
- 216 *Education of Slow-learning Children** (3) Amos
Identification, nature, and needs of slow learning elementary and junior high school children. Emphasis on diagnosis and treatment of learning difficulties. (Fall—evening; summer 1964.)
- 217-18 *Philosophy of Education** (3-3) Westerlund
First half: designed to help students formulate a personal philosophy of education. *Second half:* social foundations of education—a study of the forces that shape the policies and offerings of the school. (Academic year—evening; summer 1964—Evening 218 (3).)
- 219 *Elementary School Classroom Procedures** (3) Baker
Current classroom practices with particular emphasis on ways of planning, unit teaching, techniques in discipline, individual and group evaluation techniques, resources for learning, providing for individual differences. (Fall—Saturday morning.)

* Prerequisite: adequate professional preparation.

- 221 *Early Childhood Education** (3) McIntyre
The philosophy and principles underlying the teaching of children four to seven years of age. Emphasis is on organization, equipment, methods, and materials for promoting the growth needs of young children. (Summer 1964.)
- 222-24 *Reading Problems** (3-3) Coleman
For experienced teachers. Study of reading difficulties on elementary and secondary school levels; classroom and clinical procedures in solving reading problems. (Academic year-evening; summer 1964—Education 223 (3).)
- 226 *Reading in Secondary Schools* (3) Redding
For experienced teachers. Consideration of special problems in the content areas; diagnostic and corrective techniques and materials for the classroom teacher; reading improvement programs. (Spring-evening.)
- 227 *Basic Issues in Elementary Education* (3) Baker
A consideration of basic issues in the purposes, organization, and conduct of elementary education. Emphasis on the philosophical and psychological roots of fundamental assumptions as they relate to classroom practices. (Summer 1964.)
- 228 *Instructional Areas in Elementary Education* (3) Baker
Critical appraisal of the objectives, organization, content, and teaching methods in the language arts, arithmetic, social studies, science, arts and crafts, health and physical education. (Spring-Saturday morning.)
- 229 *Administration of Elementary Education* (3) Carroll
For experienced teachers and administrators. Administration as a means of achieving instructional objectives, organizing learning and teaching activities, handling supplies and equipment, maintaining the building, and integrating school and community life. Emphasis upon guide lines to action. (Fall-evening; summer 1964.)
- 231 *Secondary School Classroom Procedures** (3) Giancaspro
Survey of current classroom practices with particular attention to selected topics such as teacher-pupil planning, group procedures, pupil security, initiatory and culminating activities, individual and group evaluation techniques, teaching aids, etc.; review of recent literature. (Fall-evening; summer 1964.)
- 233 *Audio-visual Education** (3) Kubaluk
Lecture (2 hours), laboratory (1 hour). Role of audio-visual materials in learning; selection, evaluation, and use of materials; administrative problems in the care, operation, maintenance, and use of audio-visual materials and equipment. Material fee \$7. (Spring-evening; summer 1964.)
- 241 *Education of the Gifted** (3) Ames
For classroom teachers. Nature and discovery of giftedness; provisions for the gifted in regular classes; experimental projects. (Spring-evening.)
- 243 *Human Relations in the Classroom** (3) Marinovich
Principles and practices involved in interpersonal relationships between learner and teacher and among learners. (Summer 1964.)
- 245 *School and Community** (3) Angel
The school as an important member of a team of social agencies that builds the community. (Fall and spring-evening; summer 1964.)
- 247 *Vocational Education** (3) Walsh
Development in the United States; current conceptions, agencies involved, problems and trends. (Not offered 1964-65.)
- 251 *Guidance in Elementary and Secondary Schools** (3) Detweiler
A survey course; scope; needs; organization of the program; services to students, the instructional staff, and the administration; personnel needed for the program. (Fall and spring-evening; summer 1964 (McDaniels).)

*Prerequisite: adequate professional preparation.

- 252 *Organization and Administration of Guidance Services* (3) Detwiler
Designed for guidance directors and supervisors and experienced school counselors who hope to qualify for such positions in the near future. Prerequisite: a minimum of 15 semester hours of approved graduate work in Measurement and Guidance. (Spring-evening; summer 1964.)
- 253 *Analysis of the Individual for Purposes of Counseling* (3) Detwiler
A detailed study of individual analysis techniques with practice in handling such methods. Prerequisite: Education 112 or the equivalent. (Spring-evening; summer 1964.)
- 254 *The Junior High School** (3) Root
Purposes, organization, core program, guidance, developing course of study, extra-classroom activities. (Not offered 1964-65.)
- 255-56 *Secondary Education** (3-3) Root
First half: current proposals for the improvement of secondary education. Second half: current problems in each of the subject-matter fields. (Academic year—Saturday morning; summer 1964 (Root, Giancaspro).)
- 257 *Occupational and Educational Information* (3) Detwiler
Designed to acquaint vocational and educational counselors with the basic occupational and educational information necessary in counseling. Sources of data and techniques of collecting, analyzing, and disseminating for purposes of guidance. (Fall—evening.)
- 258 *Techniques of Counseling* (3) McCauley
An intensive study of the educational and psychological processes involved in counseling interviews. Specific types of vocational, educational, and personal counseling problems will be discussed. Prerequisite: 12 semester hours in testing and guidance, including Education 253 and 257. In exceptional cases Education 253 or 257 may be taken concurrently with 258. (Fall and spring—evening; summer 1964.)
- 259 60 *Secondary School Management** (3-3) Johnson
For experienced teachers and administrators with two years of successful teaching in secondary schools. Management planning, execution, and control; criteria of good management, construction of the master schedule, leadership problems incident to the development of new policies and programs. (Academic year—Saturday morning.)
- 261 62 *Practicum in Guidance* (3-3) Detwiler
Supervised practical instruction in school guidance. Prerequisite: graduate work in counseling. Admission by permission of the Chairman of the Department. (Academic year—as arranged.)
- 263-64 *Employee Training* (3-3) Walsh, Root
First half: nature and purpose, review of major programs—orientation, supervisory, apprentice, clerical skills, communication. Second half: administrative problems and practices, training media, coordination with other management functions. Prerequisite: adequate professional preparation or two years of experience in employee training. Academic year—evening.)
- 265-66 *Teaching Secondary School English—Materials, Resources, Content* (3-3) Williams
A refresher course for teachers of English. Discussion of new approaches to course content. Offered in cooperation with the departments of English and Speech. First half: communication skills—structural linguistics, composition, and speech. Second half: American and English literature. (Not offered 1964-65.)
- 267 68 *Teaching Secondary School Social Studies—Materials, Resources, Content* (3-3) Whipple
A refresher course for teachers of the Social Studies. Discussion of new approaches to course content. Offered in cooperation with the departments of History, Political Science, Geography and Regional Science, Economics, and Sociology and Anthropology. (Academic year—evening.)

*Prerequisite: adequate professional preparation

- 269-70 *Business Management of Schools I-II* (3-3) Carroll
First half: philosophy, responsibilities, and function of the business management office in public education institutions; responsibilities of boards of education, superintendents, and central office staffs. *Second half:* planning and financing; building, utilization, operation, and maintenance; transportation; lunchrooms; purchasing, storing, and distribution; accounting and budgetary procedures; depreciation, insurance, and bond issues. (Academic year—evening.)
- 271 *The Teacher and School Administration** (3) Carroll, Suber
 A survey course for teachers and prospective administrators. Education and world affairs, national agencies, role of the state, local administration, school finance, legal controls, school plant, public support, democratic administrative procedures, improving teaching conditions. (Fall—Saturday morning; spring—evening; summer 1964.)
- 272 *The Teacher and School Supervision** (3) Carroll, Suber
 Nature, organization, human relationships, and techniques. (Fall—evening; spring—Saturday morning; summer 1964.)
- 273-74 *Teacher Education** (3-3) Edelfelt
First half: aims, objectives, and basic issues; study of outstanding and experimental programs. *Second half:* recruitment and selection, general education, teaching field preparation, professional sequences, laboratory experiences. (Academic year—evening.)
- 275 *School Finance** (3) Carroll
 Educational financial theory, practice, and control, including methods of financing. (Spring—evening.)
- 276 *Seminar: Public Relations in School Administration** (3) Carroll
 Purposes, gathering materials, disseminating agencies, publicity media, public participation in policy making. (Spring—evening.)
- 277 *Administration of School Personnel** (3) Carroll
 Techniques and problems of administration related to more effective service of staff personnel. (Not offered 1964-65.)
- 278 *School Law** (3) Remmlein
 Sources and scope of school law; legal rights and responsibilities of teachers, pupils, and taxpayers. Other legal problems of major interest to the group. (Summer 1964.)
- 279-80 *Adult Education** (3-3) Detwiler, Holden
First half: current concepts and objectives, agencies involved, programs on all levels—international through community. *Second half:* the adult as a learner, the teacher of adults, learning-teaching activities, administration of adult education programs. (Academic year—evening; summer 1964—Education 280 (3).)
- 281 *Seminar: the Educational System of the Soviet Union* (3)
 (Fall—evening.)
- 282 *Seminar: the Educational System of Communist China* (3)
 (Spring—evening.)
- 283-84 *Higher Education** (3-3) Rogers
First half: development, present status, and outlook for American colleges; purposes of higher education, current and projected programs; trends in curriculum, instruction, administration, and evaluation of outcomes. *Second half:* principles in development of college programs; study of curricula in liberal arts and professional fields; relationship of institutional services and facilities to the instructional program. (Not offered 1964-65.)

*Prerequisite: adequate professional preparation

285 Extra-classroom Activities* (3)

Nature and purposes of selected activities—homecoming, clubs, assemblies, school publications, student council, interscholastic contest; particular attention to sponsorship, participation, finance, and evaluation. (Not offered 1964-65.)

287-88 Clinical Study of Reading Problems* (3-3)

Coleman

For advanced students. Diagnostic and corrective work under supervision of the Reading Center. Each student is expected to diagnose and treat pupils who are retarded in reading. Case studies are presented and criticized. Prerequisite: Education 222-24 or the equivalent. Material fee, \$5 a semester. (Academic year—evening.)

289 Supervisory Problems in Reading* (3)

Coleman

For experienced teachers, principals, supervisors, and superintendents. Considers the problems involved in planning, reorganizing, and improving the total reading program, in promoting cooperative effort on the part of the staff toward increasing teaching efficiency. (Not offered 1964-65.)

291 Planning the School Plant (3)

Cameron

Selection of sites; evaluation of existing buildings; utilization of present facilities; adaptation to curricular needs; building, operation, and maintenance problems. (Not offered 1964-65.)

293-94 Research (3-3)

The Staff

Individual research under the guidance of a member of the staff. Programs and conferences arranged with an instructor. (Academic year—as arranged; summer 1964.)

295 Educational Research Methods and Procedures (3)

McCauley

Required of all candidates for graduate degrees in Education. To be taken early in the student's graduate program. Prerequisite: an elementary course in statistics. (Fall and spring—evening; summer 1964.)

296 Seminar in Educational Research (3)

McCauley

Designed to help students analyze scientific approaches to problems in education; evaluate the application of research techniques to typical problems; define, organize, and conduct research studies; and prepare proposals for sponsored research. Required of all candidates for the Doctor of Education degree and open, with permission, to candidates for other advanced degrees. Prerequisite: Education 295 or the equivalent. (Spring—evening.)

299-300 Thesis (3-3)

The Staff

Required of all Master of Arts in Education candidates writing Master's theses. (Academic year—as arranged; summer 1964.)

SPECIAL PROGRAM IN ELEMENTARY TEACHER EDUCATION

The following courses are open only to students in the Special Program in Elementary Teacher Education.

107 Foundations for Elementary School Teaching (9)

Baker, Rashid, and Staff

A block course, dealing with the history of education, the psychological foundations of elementary education, the nature of elementary education, and the elementary school in our society. The content of traditional courses in educational psychology; history of education; human development, learning, and teaching; society and the school; and introduction to elementary education will be covered. One hundred and thirty-five class hours, supplemented by field experiences. (Summer 1964.)

119 Elementary School Curriculum (12)

Rashid and Staff

A block course, identifying the essential experiences for the education of elementary school children and working toward initial competence in the methods and materials

*Prerequisite: adequate professional preparation

for providing such experiences. The subject areas of reading, children's literature, communication arts, arithmetic, science, social studies, art, music, and physical education are included. One hundred and eighty class hours, supplemented by appropriate observations and field experiences. (Fall—day.)

- 230 *Seminar for Interns in Elementary School Teaching* (3) Rashid, Bilsky
Scheduled weekly meetings for discussion of common problems and for cooperatively planned work on areas of individual and group needs. (Spring—day.)

SPECIAL COURSES OFFERED IN AFFILIATION WITH THE WASHINGTON SCHOOL OF PSYCHIATRY

The following Education courses, offered by the Washington School of Psychiatry in affiliation with The George Washington University, are available to graduate students in the School of Education and to qualified students in the Division of University Students. The Staff of the Washington School of Psychiatry will conduct these courses at the School of Psychiatry, 1610 New Hampshire Avenue, NW., Washington, D. C.

- 234 *Communication Skills for Teachers and Principals* (3) Bernstein
The life-space interview in the school setting between school personnel and the child or parent. (Summer 1964.)

- 235 *Role of the Teacher in the Changing Community* (3)
Racial, ethnic, and social class population shifts and accompanying problems of housing, health, and public safety, with emphasis on the human relations and mental health aspects of the current situation; supports, techniques, and resources available to educators. (Fall and spring—evening.)

- 236 *Emotional Factors in Learning* (3)
For counselors and guidance staff, principals, special education teachers, pupil personnel workers. Problems of guidance derived from divergent or pathological motivational patterns in the child or family. Class limited to 25 students. (Fall and spring—evening.)

- 237 *Emotional Problems Confronting the Teacher* (3)
The teacher's relationship with other teachers, the administration, the school system, and pupils; techniques of interviewing and dealing with parents; members of the school staff, and the community. (Fall and spring—evening.)

- 238 *Seminar on Learning Problems and Disabilities* (3)
Emotional learning blocks, socioeconomic disadvantages, brain damage and hyperactivity, psychosomatic symptoms and health questions affecting learning, curriculum planning and its relation to mental health and learning growth, communication and motivation. (Spring—evening.)

- 239 *Educational Problems of the Urban Child* (2)
Mental health problems affecting the urban child's vocational, educational, and emotional needs; teacher-child relationship, language differences in various socioeconomic environments. Curriculum planning. (Fall and spring—evening.)

- 240 *Techniques of Interviewing for Teachers and School Staff* (3)
An intensive study of specific interview techniques and requisite skills. Specific problems encountered by teachers and staff will be discussed. (Fall and spring—evening.)

Engineering and Applied Science*

Professors C. H. Walther, M. A. Mason, R. A. Hechtman, P. A. Craiton, Louis de Pian, N. T. Grisamore, H. E. Smith, Robert Heller, M. S. Ojalvo, G. M. Arkilic, H. D. Kube (*Visiting*), A. M. Rothrock
Adjunct Professors L. A. Guldner, A. G. McNish, Gunther Sorget, Churchill Eisenhart, Theodore Young, F. K. Harris, D. P. Johnson
Professorial Lecturers Ezra Glaser, William Dorfman, Francis Washer, J. L. Intermaggio, R. J. Wilson
Associate Professors John Kaye, A. C. Murchugh, R. R. Fox, R. F. Cronin, W. J. Battin, L. H. Glassman
Associate Professorial Lecturers Chester Peterson, Stefan Schreier, D. H. Cook
Assistant Professors E. H. Braum, John Effis, R. M. Moore, A. C. Meltzer
Lecturers George Abraham, P. H. Sawitz, L. S. Rotolo, Howard Eisner, Milton Gussow, D. C. Rohlfis, T. B. Wiggins, John Jones, Jr., Victor Selman, W. W. Balwanz, J. P. Fennell, P. S. Shane, N. A. Sloan
Instructors T. P. Carroll, D. K. Anand, J. M. Raffel
Associates Donald Baechler, J. M. Cameron

Engineering Technologist Certificate.—For requirements see pages 139-40
Bachelor of Science (Civil Engineering).—For requirements see pages 123-28
Bachelor of Science (Communications).—For requirements see pages 123-28
Bachelor of Science (Control Systems).—For requirements see pages 123-28, 129
Bachelor of Science (Electrical Engineering).—For requirements see pages 123-28, 129
Bachelor of Science (Electronics).—For requirements see pages 123-28, 130
Bachelor of Science (Energy Conversion).—For requirements see pages 123-28, 130
Bachelor of Science (Engineering Science).—For requirements see pages 123-28, 130-31
Bachelor of Science (Machine Computers).—For requirements see pages 123-28, 131
Bachelor of Science (Measurement Science).—For requirements see pages 123-28, 131-32
Bachelor of Science (Mechanical Engineering).—For requirements see pages 123-28, 132
Bachelor of Science (Structures).—For requirements see pages 123-28, 132-33
Bachelor of Science (Theoretical and Applied Mechanics).—For requirements see pages 123-28, 133
Master of Engineering Administration.—For requirements see pages 133-34, 134-36
Master of Science.—For requirements see pages 133-34, 135-36
Doctor of Science.—See pages 136-38

APPLIED SCIENCE

UNDERGRADUATE

- 1 **Graphical Communication (3)**
 Principles and methods of graphical communication, sketching, schematic diagrams, nomographs, charts and graphs, elements of descriptive geometry, spatial representation.
- 1 **Logic and Method in Analysis (3)**
 Logic, methods of investigation and reasoning, hypothesis, inference, probability. Analysis in the physical sciences and engineering

* The Staff of Instruction is for the academic year 1963-64.

5-6 *Finite Mathematics and Statistics in Science I-II (3-3)*

Statements, sets and functions, numbers systems, probability theory, linear algebra, convex sets, finite chains, basic statistical principles and methods, applications.

10 *General Field Theory (3)*

General theory of fields, Laplace and Maxwell equations, conformal mapping, particle motion in fields, potential.

11 *General Wave Theory (3)*

Basic wave mechanics; wave equations.

12 *Electromagnetic Wave Theory (3)*

Electromagnetic waves in bounded media, radiation, resonators, guides, microwaves.

29-30 *General Network Theory I-II (3-3)*

Network theorems and functions, Laplace transform, Fourier integral, linear and nonlinear circuits, stability, matrices, domains.

32 *Network Analysis (3)*

Solutions of equations using transformation calculus, poles and zeroes of network functions, correlation of domains, matrix representation, nonlinear circuit analysis.

50 *Information Theory (3)*

Basic concepts of information, sources, processes, errors, coding, transmission, capacity, noise.

55 *Control Theory (3)*

Theory of automatic control systems, steady-state and transient analysis, transfer functions, stability criteria.

61 *Analysis Methods (3)*

Methods for analyzing problems; use of fundamental principles of mathematics, science, and engineering in problem analysis.

79-80 *Introductory Analytical Mechanics I-II (3-5)*

Introduction to vector mechanics; statics and dynamics of particles, solids, and fluids; kinematics; behavior of solids and fluids acted upon by forces; Newton's Laws; concepts of stress and strain, with applications.

62 *Soil Mechanics (3)*

Soil mechanics theory, lateral pressure, seepage, failure, slope stability, bearing capacity, behavior under loading.

63-64 *Fluid Mechanics I-II (3-3)*

Characteristics and properties of fluids; basic laws of fluid motion; characteristics of flows; mathematical description of incompressible and compressible flows; concepts of potential, stream function, circulation, lift, drag; elements of boundary layer theory, turbulence, dimensional analysis; laboratory demonstrations and projects.

65-66 *System Dynamics I-II (3-3)*

Dynamics of linear systems, analogies, transient and steady-state analysis, Laplace's equations, Hamilton's principle, introduction to gyrokinematics.

67 *Analytical Kinematics (3)*

Theoretical study of the motion of constrained and unconstrained rigid bodies.

68 *Deformable Body Mechanics (3)*

Introduction to two-dimensional theory of elasticity; torsion of non-circular bars; bending of thin plates; buckling of columns; beam-column; beams, plates and shells; stress and strains of plastic materials.

70 *Earth Science (3)*

Formation of and properties of soils and rock, climatology, hydrology, ground water and river flow, seismology.

75 *Digital Circuitry and Systems (3)*

Basic concepts of digital programmed systems, mathematical foundations and techniques for logical design, computer logic and assembly.

80 Introductory Astronomy (3)

Coordinate systems and nomenclature, description of astronomic systems, stars, stellar physics, elementary celestial mechanics.

85 Thermodynamics (3)

Theoretical study of fundamental concepts, first and second laws, equations of state, entropy, phase mixtures.

86 Energy Conversion (3)

Energy forms and states, energy fields, concepts of efficiency, conversion methods, limitations.

87 Heat Transfer Theory (3)

Theoretical concepts of conduction, convection, radiation; field and potential theory applied to conduction.

99 Intermediate Comprehensive Evaluation (0)

Required of all students at the completion of the Introductory Level and prior to admission to the Intermediate Level. No academic credit; no fee.

101-2 Materials Science I-II (4-4)

Structure and properties of materials; mechanical behavior of solids. The atom, bonding, crystal structure, noncrystalline solids, phases, micro and macro-structure, mechanical properties of solids, relation of structure to behavior, tests. Thermodynamics and kinetics of solids; electrical and magnetic properties. Thermodynamic analysis, reaction rates, diffusion, nucleation and growth, control of structure and properties, response to environment. Conduction, electrical and magnetic phenomena and their relation to structure, domain behavior, structure, resistive properties.

105-6 Fundamentals of Measurement Science I-II (4-4)

Standards; measurements; error, accuracy, and precision; design of experiments.

107 Statistics in Metrology (3)

Qualitative and quantitative aspects of measurement, statistical methods, uncertainty and accuracy, corrections, sampling.

110 Management Analysis (3)

Principles of schematic, conceptual, and mathematical models; mathematical programming; operations analysis.

111 Operations Research (3)

Characteristics and capabilities of operations research, role in decision making, methods and techniques.

112 Quantitative Techniques (3)

Theoretical study of mathematical, statistical, and quantitative techniques for management.

121-22 Structural Theory I-II (4-4)

Theory and analysis of behavior of structures, model analysis, numerical methods, matrix algebra methods, collapse methods.

140 Electrical Energy Conversion (3)

Generalized machine theory, thermodynamics, thermoelectricity, fuel cells, photovoltaics, introduction to electromechanical components, elements of machine hydrodynamics.

98 Undergraduate Research (1 to 3)

Research problems approved by the faculty, with Dean's permission credit is assigned in relation to work undertaken.

199 Advanced Comprehensive Evaluation (0)

Required of all students at the completion of the Intermediate Level and prior to admission to the Advanced Level. No academic credit; no fee.

GRADUATE

201 *Automatic Control* (3)

Advanced theory of automatic control. Systems analysis, multiple loop systems, non-linear systems.

211 *Mathematical Methods in Applied Science I* (3)

A course in such topics as functions of complex variables, infinite series, linear vector spaces and matrices, and partial differential equations.

212 *Mathematical Methods in Applied Science II* (3)

Mathematical topics include: introduction to tensor analysis, calculus of variations, finite differences, and integral equations.

216 *Advanced Dynamics* (3)

Dynamics of continuous mechanical systems; Lagrange's equations, Hamilton's principle, gyrokinematics; operational methods.

217 *Analytical Mechanics* (3)

Fundamental principles, generalized coordinates, variational principles and Lagrange's equations, nonholonomic systems, Hamilton's equations, theory of small oscillations.

218 *Mechanics of Orbits and Trajectories* (3)

Celestial mechanics. Orbits and trajectories in force fields. Dynamics of space vehicles.

219 *Mechanics of Continua* (3)

Mechanics of elastic, plastic, and viscous solids, and of fluids; introduction to theory and formulation of basic equations.

220 *Nonlinear Mechanics* (3)

Topological and analytical methods in nonlinear mechanics, nonlinear resonance, relaxation oscillations.

221 *Theory of Elasticity I* (3)

Introduction to mathematical theory of elasticity, analysis of strain and stress, generalized Hooke's law, equilibrium equations, Beltrami-Mitchell equations, strain energy functions, torsion, general flexure.

222 *Theory of Elasticity II* (3)

First and second boundary value problems in plane elasticity, uniqueness of solutions, simply and multiply connected regions, three-dimensional problems, thermoelasticity, vibration of elastic solids, variational methods.

223 *Celestial Mechanics* (3)

General equations of motion, Lagrange's planetary equations, disturbing function, Delaunay and Poincaré variables, secular inequalities, lunar theory, precession and nutation.

227 *Experimental Stress Analysis* (3)

Applications of the theory of elasticity in the analysis of strain and stress; theory and problems in measurement of static and dynamic strains; measurement of force, acceleration, and velocity.

228 *Photoelasticity and Photoplasticity* (3)

Theory and problems in two- and three dimensional photoelasticity; photoplasticity.

231-32 *Fluid Dynamics I-II* (3-3)

Physical principles of fluid motion; including conservation laws, characteristics and properties of fluids. Navier-Stokes equations and some solutions; Prandtl layer hypothesis and boundary layer theory, turbulence; compressible flow, including variable area, friction and heating effects, normal and oblique shock, sub-, trans-, and supersonic velocities.

233 Problems in Applied Science (3)

Investigation of problems in engineering and applied science, emphasizing imaginative and systematic application of fundamental principles in engineering, physics, and mathematics.

241 Science of Materials (3)

Relation of the atomic and microscopic structure of materials to their physical and mechanical properties and their mechanical behavior in applications.

242 Magnetohydrodynamics (3)

Study of the interaction of electromagnetic and fluid fields. Dynamics of conducting fluids in electromagnetic and magnetic fields.

250 Theory of Plane Structures (3)

Classical and modern methods of analysis of statically indeterminate structures, including matrix analysis, theory of plastic collapse.

251 Nonlinear Theory of Structures (3)

Causes of nonlinear structural behavior; analysis of beams, trusses, and rigid frames; deflection theory for arches and suspension bridges.

252 Theory of Structural Dynamics (3)

Analysis of elastic structures under various dynamic loadings, both steady state and transient, including vibrations of rigid frames, plates, and thin shells.

253 Theory of Space Structures (3)

Displacement and force methods of analysis of statically indeterminate structures; including matrix analysis, membrane and bending theories for thin shells.

260 Theory of Plates and Shells (3)

Classical and modern theories of plates and shells, plates and cylindrical shells under different loadings and boundary conditions; equations for plates including shear, rotationally symmetric shells under small deformations, and their applications.

261 Theory of Plasticity (3)

Introduction to mathematical theory of plasticity; tensor invariants, theory of conditions of compatibility, constitutive equations, characteristic surfaces for perfectly plastic solids; applications.

262 Theory of Elastic Stability (3)

Beam-column problems and methods of analysis (including numerical analysis); lateral buckling of beams; buckling of rigid frames, arches, plates, stiffened plates, and shells; inelastic buckling.

263 Field Analysis and Potential Theory (3)

A general study of the theory of potentials including those used to facilitate the solution of problems in electromagnetic theory, mechanics, thermodynamics, and gravitation.

264 Electrodynamics (3)

Presence of moving matter in electromagnetic fields, force and energy in moving systems, relativistic concepts, tensors.

265 Electromagnetic Waves (3)

Electromagnetic waves in bounded media, radiation from antennas, high frequency transmission lines, cavity resonators, and microwave devices.

266 Electromagnetic Wave Propagation (3)

Ground waves; space-wave propagation, atmospheric effects, ionosphere; maximum usable frequency; bandwidth.

267-68 Network Analysis and Synthesis I-II (3-3)

Network theorems; geometry of networks; network functions; positive real functions; reliability conditions of network functions; synthesis of driving point functions; synthesis of transfer functions; filter design; the approximation problem.

270 General Network Analysis (3)

Solutions of linear integro-differential equations using transformation calculus. Laplace transforms, Fourier integral, poles and zeroes of network functions, correlation of time and frequency domains, elements of network synthesis.

271 Active Network Theory (3)

Analysis of three terminal networks; matrix representation; reciprocity; stability; passivity activity; feedback; oscillators. Unified theory for all linear three-terminal networks, including vacuum tube and transistor circuits.

274 Analysis of Modulation and Noise (3)

Analysis of Fourier series and integrals of signals and linear networks, modulation and spectra, noise analysis including probability method of determining power spectra.

275 Physical Electronics (3)

Physical principles underlying operation of various electronic devices including vacuum tubes, electron lenses, transistors, and recent solid state electronic devices.

280 Thermodynamics (3)

Critical study of first and second laws; ideal and van der Waal gases; kinetic theory and thermodynamics; introduction to statistical thermodynamics and third law.

281 Heat Transfer (3)

Physical and mathematical concepts of heat transfer phenomena under steady and unsteady conditions, including: Stefan-Boltzmann and Planck laws for radiation, Fourier heat equation for conduction, dimensional analysis, and boundary layer theory for convection.

282 Gas Dynamics (3)

Theory of gas dynamics including: combustion, shock phenomena, dynamics of flow, and heat transfer for high temperature gases.

283 Hypersonic Fluid Dynamics (3)

Small disturbance theory, Newtonian theory, constant-density solutions, thin shock layer, viscous interactions, free molecule and rarefied gas flows.

284 Combustion Processes (3)

Thermodynamics of combustion, chemical kinetics, flame propagation, combustion of liquids and solids, detonation processes.

285 Reaction Kinetics (3)

Theoretical aspects of kinetics of homogeneous and heterogeneous reactions in gaseous and liquid systems.

286 Information Theory (3)

Discrete and continuous systems, ergodic ensembles and random processes; correlations, filtering, prediction; redundancy.

287 Automata and Self-organizing Systems (3)

Effectively computable functions and Turing machines, digital computational methods, Boolean algebra, combinational circuits and their analysis, recurrent circuits and their analysis, reliability of automata, networks of automata, artificial intelligence.

298 Research (1 to 3)

Research as arranged.

299-300 Thesis (3-3)**ENGINEERING****UNDERGRADUATE****1 Engineering Planning and Economics (3)**

Analysis, planning, and economics of engineering projects using mathematical and computer computational methods.

2 Regional and Urban Planning (3)

Engineering aspects of regional and urban planning, including: transportation, water supply and sewerage, public safety and convenience, utilities, and natural resources.

10 Hydraulic Engineering (3)

Hydraulic system design; including pipe networks, river and channel flow; drainage and irrigation, water supply, and sewerage.

11-12 Structural Design I-II (3-3)

Concepts of structural design; analysis and design of metal and reinforced concrete structures; plastic collapse and ultimate strength analysis

13-14 Structural Laboratory I-II (3-3)

Theoretical and experimental treatment of structural problems.

15 Structural Dynamics (3)

Analysis and design of structures under vibration, earthquake, blast, and other dynamic loading; energy methods; applications of matrix algebra

19-20 Engineering Electronics I-II (3-3)

Analysis and design of: vacuum tube and solid state devices; voltage and power amplifiers; feedback amplifiers; oscillators, equivalent, relaxation, and computing circuits

21 Application of Computers to Engineering Problems (3)

Machine utilization; number systems; principles of programming, machine language and automatic programming language, Fortran, Algol, Colol; numerical analysis, basic logical circuits.

22 Digital Techniques (3)

Automatic programming techniques, self-detecting and correcting codes, logical circuit design, electronic design of digital transistor and magnetic core circuits, memory systems, analog-to-digital techniques, wiring diagrams.

23-24 Computer Laboratory I-II (3-3)

Use of digital and analog computers; including design, logical circuitry, programming, operation, maintenance, and troubleshooting.

30 Applied Thermodynamics (3)

Vapor cycles, combustion, gas dynamics, equilibrium, multiphase mixtures

31-32 Thermal Power I-II (3-3)

Analysis and design of system components in heat power, gas and vapor turbine, internal combustion engine, heat pump, and nuclear power systems, recording aspects of engineering economy.

35 Fluid Machinery (3)

Theory and design of fluid machines; including turbomachinery, torque converters and couplings, and jet machines. Laboratory projects

49-50 Precise Electrical Measurements I-II (3-3)

Electrical measurements, from direct current through radio frequencies; techniques; detectors; bridges; measurement of current, voltage, power, resistance, capacitance, inductance, energy, phase angle, frequency and time, dielectric and magnetic measurements; topics in high frequency measurement including field strength, signal-to-noise ratio, impedance, attenuation

52 Introductory Transducers and Instrumentation (3)

Theory, design, and application of simple transducers; design of instrumentation of one-type systems; analysis and design of simple transducer instrumentation

53 Advanced Transducers and Instrumentation (3)

Analysis and design of transducers and instrumentation for measurement in systems containing multiple quantities of one type or mixtures of types

54 Precise Mechanical Measurements (4)

Techniques for precise measurement of mass, time, weight, density, force, pressure, vibration, acceleration, flow, and viscosity

55 Precise Heat Measurements (4)

Temperature scales; measurement by resistance thermometry, thermocouples, pyrometry, vapor pressure, thermometry; heat transfer quantities and their measurement; calorimeters, flow calorimeters.

56 Pressure Measurements (3)

Experimental techniques for quantitative measurement of pressure; working ranges, standards, calibration procedures; methods and apparatus for observations near atmospheric pressure, in the high pressure range, and in the vacuum range.

101-2 Communications Laboratory I-II (3-3)

Analysis and design of solutions to problems in communications and information

103-4 Control Laboratory I-II (3-3)

Analysis and design of electrical, mechanical, pneumatic, hydraulic, and combined control systems.

105-6 Electrical Engineering Laboratory I-II (3-3)

Design projects involving electrical and electromechanical devices and systems.

107-8 Electronics Laboratory I-II (3-3)

Design projects involving electronic devices and instrumentation.

109-10 Energy Conversion Laboratory I-II (3-3)

Analysis and design of solutions to problems in converting energy states and forms

111-12 Mechanical Engineering Laboratory I-II (3-3)

Design projects involving mechanical, fluid thermal, thermomechanical, and electro-mechanical devices.

115 Reactor Engineering (3)

Reactor physics; types of reactors; moderators, control methods, pile design; reactor kinematics; design problems.

199 Engineering Research (1 to 3)

Undergraduate research projects as approved by the Faculty, with Dean's permission. Credit is assigned in relation to the work undertaken.

GRADUATE**201 Metal Structures (3)**

Structural behavior and failure of metal structures, materials, residual stresses, analysis and design of connections and members, theory of plastic collapse of structures, plastic design.

202 Ultimate Strength of Reinforced Concrete Structures (3)

Modes of failure of reinforced concrete structures; experimental data on failure; ultimate strength concepts for the analysis of beams, slabs, and columns.

203 Prestressed Concrete Structures (3)

Structural behavior and failure of prestressed concrete structures; materials; theory, analysis, and design of prestressed concrete structures and members.

204 Geotechnics in Soil Mechanics (3)

Dynamic geology in the formation and properties of soils; Boussinesq and Westergaard equations for stresses and deformations in soil masses; analysis of settlement; flow of water in soils; solutions of Laplace-type equations for seepage involving foundations, earth dams, and wells; theory of frost action.

205 Theoretical Soil Mechanics (3)

Theories of soil strength and conditions for failure, bearing capacity of footings, pile foundations, theories of lateral earth pressure, stability of slopes, soil dynamics.

206 Foundation Engineering (3)

Principles of soil mechanics and structural mechanics in the analysis and design of spread footings, mat and pile foundations, retaining walls, sheet piling and water front structures.

211 Experimental Structural Analysis (3)

Experimental analysis of truss, rigid frame, plate, and shell structures; large- and small-deflection models; similitude.

212 Concepts of Structural Design (3)

Advanced seminar relating theoretical and experimental knowledge to the problems of function, form, mechanical behavior, failure, and analysis of structures.

220 High-frequency Electronics (3)

High frequency operation of electron tubes and semiconductor devices, transit time, bunching, pulse techniques.

221 Industrial Electronics (3)

Gaseous tubes and applications; rectifiers; timing circuits; induction and dielectric heating; regulation and control; magnetic amplifiers.

222 Electronic Measurements in Medicine (3)

Theory of measurements in biological areas, field and circuit theory as a foundation for measurements, techniques for electronic measurements on biological specimens, problems in medicine and psychology with emphasis on measurements and measuring devices.

223 Physical Basis for Medical Electronics (3)

Electrical and acoustical properties of biological material; structural components of biological material as they affect its dielectric and acoustical behavior, electrical relaxation phenomena in general and their application to biological material in particular, applications in diathermy and electrocardiography, impedance determination.

230 Digital Techniques (3)

Automatic programming techniques, self-detecting and correcting codes, advanced logical circuit design, electronic design of digital transistor and magnetic-core circuits, memory systems, analog-to-digital techniques, wiring diagrams.

231 Digital Circuitry and Systems (3)

Basic concepts of modern digital programmed systems, mathematical foundations and techniques for logical design of digital circuits, electronic design of computer circuits.

232 Digital Systems (3)

The programmed system; system design of digital computers, special-purpose digital computers, reliability, data processing techniques, analog-to-digital and digital-to-analog techniques.

233 Microwaves (3)

Transmission lines; waveguides; antennas; resonators; amplifiers and oscillators; klystrons, magnetrons, traveling wave tubes.

234 Antennas (3)

Maxwell's equations, radiation, impedance, directional characteristics, arrays, aperture antennas.

235 Communication Systems (3)

Radar, television; ultrahigh frequency systems; navigational aids.

240 Power Transmission (3)

Transmission lines, exact and approximate equivalent circuits, standing waves, filtering, protection, radio interference, high voltage, line configurations.

241 Power Generation (3)

Steam, hydroelectric, and nuclear plants; fuel cells; magnetohydrodynamics; efficiency; reheat cycles; stability; load factors; generator swings.

242 Power Systems (3)

Substations, transformers, distribution networks, short and open circuit analysis, symmetrical components, stability, network analyzers.

270 Advanced General Metrology (3)

Topics in the conceptual, physical, and mathematical aspects of measurement, standards, design for precision measurement, and measurement at extreme values.

271-72 Probability and Statistics of Metrology I-II (3-3)

Probability distributions, discrete and continuous distributions; sampling; combination analysis; stochastic processes; conditional probability; correlation; analysis of variance; design and analysis of experiments, Latin Square experiments, factorial experiments, block and lattice design.

273 Microwave Measurements (3)

Measurement of power, frequency, impedance, wavelength, and attenuation at microwave frequencies. Characteristics and Q of resonant devices.

274 Precise Optical Measurements (3)

Optical constants of lens systems; aberration; resolving power; illumination in focal plane; image evaluation, magnification, index of refraction; color and color temperature.

298 Research (1 to 3)

Research as arranged.

299-300 Thesis (3-3)**ENGINEERING ADMINISTRATION****GRADUATE****204 Administration of Engineering Contracts (3)**

Study of types of contracts, proposal preparation, evaluating contracts, negotiation, contract extension policies and procedures, appraisal of capabilities of contractors.

207 Personnel Administration (3)

Study of personnel functions with emphasis on relationships within organizations which utilize the services of engineers and scientists: employment, health, safety, education and training, financial compensation, union relations, collateral benefits and services, human relations and personnel research practices in engineering and industry.

210 Engineering Law (3)

Legal principles and procedures of interest to engineers, the American Legal System, contracts and specifications, liability of professional engineers, antitrust problems, agency relationships, negotiable instruments, patent and proprietary rights, special problems in research and developmental contracts.

211 Engineering Administration I (3)

Planning and scientific method in administration. Characteristics of plans; establishment of objectives and goals; forecasting future conditions; determining policies, methods, and procedures; organizing for planning; testing of plans. Decision making, problem solving; factors in decisions, problem formulation, model building, testing and solving, testing and control of solutions.

212 Engineering Administration II (3)

The (1) organizing, (2) directing or leading, and (3) controlling elements of the administrative process. Characteristics of organization, departmentization, authority, responsibility, levels of specialization, coordination, decentralization, staff, committees, delegation, personnel management, executive leadership, communication; implications of automation; systems analysis for effective administration. Principles and methods for evaluation and control of operations.

213 Engineering Administration III (3)
(Sequential to EA 211 and EA 212)

Application of principles of administration and scientific method in solving case problems.

253 Management of Production Processes and Facilities (3)

Planning, organizing, and control of production; forecasting techniques; material management; methods of loading and scheduling production processes; electronic methods in production control. Organization and administration of the plant engineering function with emphasis on maintenance control programs.

254 Principles and Procedures of Automatic Data Processing Systems (3)

Logic of computers, arithmetic and control units, computers as systems analysis for data processing applications, systems design, systems economics, relation to scientific decision processes.

255 Administration of Research and Development (3)

Contemporary practices of administrators of scientific and engineering research and development for the purpose of finding uniformities, characteristics, and conceptual schemes; relation of such findings to accepted managerial concepts, and integration of their implications on contemporary managerial hierarchies and organizational structures.

261 Economic Analysis in Engineering Planning (3)

Important concepts and theories employed in economic analysis of engineering projects. Application of tools and techniques used in various analytical processes. Detailed practice in pursuit of solutions to, and adjustment of, persistent and current problems in this field.

263 Quantitative Techniques of Engineering Administration (3)

Application of the various quantitative techniques, mathematical, statistical, and other management sciences' techniques to the analysis of engineering administration and the solution of administrative problems by the use of models, theories, and measurement.

271 Operations Research (3)

Background and application of operations research; history, characteristics, capabilities, administrative considerations, methods and techniques, including construction of conceptual and mathematical models.

272 Problems in Operations Research (3)

Field experience in operations research on a team basis. Each small group locates an actual problem and formulates and solves it by operations research models. Class evaluation of progress.

275 Linear Programming (3)

The basic computational, theoretical, and applied areas with emphasis on the general linear programming problem; simplex computational procedure; duality; transportation and assignment problems; production scheduling problem; resource two-person games; applications and recent developments.

276 Theory of Games (3)

Study of mathematical models with applications to the relationships among independent competitive entities (persons or organizations in environment of competition, bargaining, bidding), selection of optimum strategies, mixed strategies, minimax concept, connections with linear programming and decision functions, two-person and n-person zero and nonzero sum games.

277 Queuing Theory (3)

Study and analysis of operational systems with variables in arrivals and service. Monte Carlo analysis, optimization methods.

285 Seminar in Administrative Problems (3)

Individual analysis of complex administrative problems, with group evaluation and discussion. Prerequisite: admission to candidacy and completion of at least 18 semester hours of graduate study.

298 *Research in Engineering Administration* (arr.)

Application of established principles to new engineering administrative situations; the development of new knowledge of administration. Creative thinking in engineering administration, initiation of new theories and principles, development of new hypotheses, experimentation, proof of theories and hypotheses.

299-300 *Thesis* (3-3)*English**

Professors E. S. Shepard, C. D. Linton†, C. W. Cole, R. H. Moore, J. H. Coberly, P. H. Highfill, Jr., J. G. Allen, Jr., J. P. Reising, Jr. (*Chairman*), R. H. Walker, Jr.
Associate Professors W. L. Turner, Muriel McClanahan†, R. E. Gajdusek‡, Elizabeth Wright

Assistant Professors M. E. Lyon, R. C. Rutledge§, Louise Clubb, R. R. Columbus
Lecturer J. J. Montoe

Instructors Dorothy Clark, L. E. Dodd, Arlyn Edelman, G. C. Landon, F. R. Turaj, J. A. L. Lemay, R. F. Marler, Jr., Judith Searle

Assistants J. S. Toomey, Eileen Allen, K. T. Samendinger, V. C. Trofi, D. F. White

Bachelor of Arts with a major in American Thought and Civilization (Field of Study)
 Prerequisite: the Arts and Letters curriculum, page 70.

Required: the general requirements, pages 76-80, and the passing of the American Thought and Civilization major examination at the end of the senior year. The coordinated field of knowledge upon which the student will be examined is summarized under four general headings: (1) European cultural history—the Renaissance and modern social and intellectual cultures as a background to contemporary civilization with particular attention to English literature and history from the 16th through the 19th centuries; (2) American history—the political, economic, social, and religious thought and experience of the American people; (3) American philosophy and fine arts—a survey of periods and movements with a knowledge of outstanding individuals; (4) American literature—a knowledge of major writers, together with a study of poetry, fiction, and drama. The Department of English provides a seminar (English 179-80) intended to assist the student in preparing himself for the major examination. The major adviser will give to each student at registration a check list of available courses grouped as prerequisite, necessary, or desirable for the completion of the major study program.

American Thought and Civilization 101 *American Civilization* is recommended as a senior-year elective for American Thought and Civilization majors.

Bachelor of Arts with a major in English Literature (Field of Study). Prerequisite: the Arts and Letters curriculum, page 70. It is recommended that prospective majors elect English 91-92 from among the listed offerings.

Required: the general requirements, pages 76-80, and the passing of the English Literature major examination at the end of the senior year. The field of coordinated knowledge upon which the student will be examined at the end of his senior year is summarized under the following general headings: (1) the history of English literature from the Anglo-Saxon period; (2) the chief English writers (a certain familiarity with each man and his main works and a detailed knowledge of Shakespeare); English social and political history.

* The Staff of Instruction is for the academic year 1953-54.

† On sabbatical leave during semester 1963-64.

‡ On leave of absence during semester 1963-64.

§ On leave of absence during 1963-64.

¶ See page 212 for description of American Thought and Civilization University-sponsored course.

tory as it bears upon or is reflected in the literature; (4) European intellectual backgrounds and movements which have affected English literature. The proportion of work taken in each of these areas should be worked out by the student in consultation with one of the English Literature advisers. The Department of English provides a proseminar (English 199-200) to assist the student in preparing himself for the major examination. A detailed description of the major is available in the Office of the Dean of Columbian College.

American Thought and Civilization 101 *American Civilization* is recommended as a senior-year elective for English Literature majors.

Master of Arts in the field of American Literary and Cultural History.—Prerequisite: the equivalent of an undergraduate major in this University in (1) History (with American history as a major part), (2) American Thought and Civilization, or (3) English Literature (with introductory courses in American literature and American history). The student who has not taken any of the above majors at this University must take a candidacy examination.

Required: in addition to the general requirements, pages 83-85, the following specific requirements must be met: twelve of the required semester hours must be of senior study, six in American history and six in American literature; twelve of the required semester hours must be of second and third group courses in the fields of American history, literature, philosophy, education, and art recommended by the adviser; a thesis (six semester hours) in any of the foregoing fields or in some combination of them. Because of the various undergraduate majors which will be accepted for admission to this program, a basic reading list is assigned to all students, to assist in preparing them for the final Master examination.

Master of Arts in the field of English and American Literature.—Prerequisite: an undergraduate major in English Literature or American Thought and Civilization at this University; or twenty-four semester hours in English and/or American literature above the sophomore level. The student who has not taken either of the above majors at this University must take a candidacy examination. The student offering split preparation (English and American literature) will be examined in English and American literature.

Required: in addition to the general requirements, pages 83-85, the following specific requirements must be met: (1) a schedule of courses amounting to twenty-four semester hours, planned in consultation with the adviser on the basis of the student's undergraduate preparation, to include a comprehensive survey of American literature and of English literature from 1600; (2) a Master's thesis (six semester hours) written upon an approved topic under the direction of the instructor in whose field the major portion of the material falls; (3) a final written examination on American literature and on English literature from 1600.

Master of Arts in the field of English Literature.—Prerequisite: an undergraduate major in English literature at this University, or twenty-four semester hours in English literature above the sophomore level. The student who has not passed the major examination in English at this University must take a candidacy examination which, in its scope and difficulty, is comparable to the major examination in English.

Required: in addition to the general requirements, pages 83-85, the following specific requirements must be met: (1) a schedule of courses amounting to twenty-four semester hours, planned in consultation with the adviser; (2) a Master's thesis (six semester hours) written upon an approved topic under the direction of the instructor in whose field the material falls; and (3) a final written examination.

Master of Arts in the field of Linguistics.—See pages 321-22, and the departments of Germanic Languages and Literatures and Romance Languages and Literatures.

Doctor of Philosophy.—See pages 87-95.

Bachelor of Arts in Education with a teaching field in English.—Prerequisite: the Education curriculum, page 72.

Report the English option and the professional courses listed in the School of Education Catalogue.

ENGLISH COMPOSITION*

FIRST GROUP

A *English for Foreign Students* (3)

Wright and Staff

A course in reading and writing designed to assist the foreign student in overcoming deficiencies in the use of English. Special attention is given to spelling, syntax, grammar, idiom, and vocabulary. (Fall and spring—day and evening; summer 1964.)

B *English for Foreign Students* (3)

Wright and Staff

For second-semester foreign students not yet ready for English 1. Writing of expository paragraphs and themes; outlining; reading for comprehension, vocabulary, and style. (Fall—evening; spring—day and evening; summer 1964.)

1 *English Composition** (3)

Moore and Staff

Review of grammar, exercises in composition, readings. (Fall and spring—day and evening; summer 1964.)

1X *English Composition** (3)

Moore and Staff

An intensive course in English grammar and composition to which are assigned students whose placement tests show them inadequately prepared for the regular work of English 1. The course begins with detailed instruction, drill, and exercises in the basic structure of the English language and in the writing of paragraphs; it continues with the content of English 1. English 1X meets five hours a week and carries 3 semester hours of credit. The total fee is \$145 (the tuition fee of \$120 plus an additional fee of \$25.) (Fall and spring—day and evening; summer 1964.)

2 *English Composition** (3)

Moore and Staff

For second-semester freshmen not following the Columbian College of Arts and Sciences sequence. Readings and practice in expository and argumentative techniques and in research procedure. Prerequisite: English 1 or 1X. (Fall and spring—day and evening; summer 1964.)

4 *English Composition** (3)

Moore and Staff

The second half of the six-hour English Composition course required of students in Columbian College. A course in critical analysis and practice in expository and argumentative techniques and in research procedure. Prerequisite: English 1 or 1X and both semesters of one of the introductory literature courses. (Fall and spring—day and evening; summer 1964.)

SECOND GROUP

109 *Expository Writing* (3)

McClanahan

A study of types of expository writing with weekly exercises based on students' needs. Particular attention may be given to problems in the writing of graduate theses. Prerequisite: English 1 or 1X, and 2 or 4. (Fall—day.)

113 *Narrative Writing* (3)

Cajdusek

Study of the techniques of narrative writing and class criticism of student writing. Prerequisite: English 1 or 1X, and 2 or 4. (Fall—day and evening.)

* Before students are registered in English 1, they are tested on the minimum essentials of vocabulary, spelling, grammar, standard usage, and writing skills. Those students who show deficiencies are assigned to English 1 or 1X. Those students who are exempted from one or both halves of the English Composition course are assigned to English 1 or 1X.

All students enrolled in preparation leading to Bachelor's degrees in Columbian College who are required to take one year of English composition and one year of literature in English. Certain foreign students, French, German, Spanish, Latin, or Spanish, will follow the sequence of English 1 or 1X and both semesters of one of the introductory literature courses, and English 4.

English 1 or 1X is prerequisite to all other courses in English. English 2 is the second half of the English Composition course required of students not required to follow the Columbian College of Arts and Sciences sequence.

- 114 *The Writing of Fiction—the Short Story* (3) Gajdusek
Prerequisite: English 113; consent of instructor. (Fall—evening.)
- 117-18 *The Writing of Fiction—the Novel* (3-3) Gajdusek
Writing a novel. Prerequisite: English 114; consent of instructor. (Academic year—evening.)
- 120 *The Writing of Poetry* (3) Gajdusek
Prerequisite: consent of the instructor. (Spring—evening.)

ENGLISH LITERATURE

FIRST GROUP

- 51-52 *Introduction to English Literature** (3-3) Hightill and Staff
Historical survey. Prerequisite: English 1 or 1X. (Academic year—day and evening; summer 1964.)
- 91-92 *Introduction to European Literature** (3-3) Shepard and Staff
Consideration of various types. Prerequisite: English 1 or 1X. (Academic year—day and evening; summer 1964—English 92 (3).)

SECOND GROUP*

- 121-22 *English Literature from the Beginnings to 1500* (3-3) Allee
First half: English literature prior to Chaucer. Second half: Chaucer. (First half: summer 1964. Second half: spring—day.)
- 125 *Introduction to English Linguistics* (3) Allee
The development of the English language in a historical treatment of English grammar. (Fall—evening.)
- 129-30 *Elizabethan Non-dramatic Literature* (3-3) Clubb
Non-dramatic literature from 1485 to 1601. (Academic year—day.)
- 135-36 *Shakespeare* (3-3) Linton
(Academic year—day.)
- 139-40 *The 17th Century* (3-3) (First half: Milton)
First half: poetry and prose from 1603 to 1660. Second half: Milton. (First half: not offered 1964-65. Second half: spring—day.)
- 141-42 *English Literature, 1660-1780* (3-3) Highfill
Poetry and prose of the Neo-Classical period. (Academic year—day; summer 1964—English 141 (3).)
- 151-52 *The Romantic Movement* (3-3) Reccsing
Poetry and prose from 1780 to 1830. (Academic year—evening.)
- 161-62 *Victorian Literature* (3-3) Columbus
Poetry and prose from 1830 to 1900. (Academic year—evening.)
- 165-66 *The 20th Century* (3-3) Linton
English poetry, prose, and drama since 1900. (Academic year—day; summer 1964—English 165 (3).)

*All students enrolled in curricula leading to Bachelor's degrees in Columbian College (who are required to take one year of English composition and one year of literature in English, Classical Languages, French, German, Slavic Languages or Spanish) will follow the sequence of English 1 or 1X, except for one of the introductory literature courses and English 4.

English 51-52, 71-72, 91-92, Classical Languages 71-72, French 51-52, German 51-52, Slavic Languages 51-52 or 93-94, or Spanish 51-52 is prerequisite to all second-group courses except English 125.

- 181-82 *The English Novel* (3-3)
Major English novelists of the 18th and 19th centuries. (Academic year—day.) Clubb
- 183-84 *The English Drama* (3-3)
First half: concerned principally with the drama of Shakespeare's contemporaries. *Second half:* a historical survey from 1660 to the present day. (First half: summer 1964. Second half: not offered 1964-65.) Highfill
- 192 *Medieval Legend and Saga* (3-)
Celtic and Norse. (Not offered 1964-65.) Allee
- 199-200 *Proseminar: Readings for the English Literature Major* (3-3)
Conferences and group discussions. (Academic year—day and evening.) Highfill, Reesing

THIRD GROUP

- 223-24 *Old English* (3-3)
English language and literature before 1100. *First half:* Old English grammar and readings. *Second half:* Beowulf. (Academic year—evening.) Allee
- 235-36 *Studies in Shakespeare and His Contemporaries* (3-3)
Prerequisite: English 135-36. (Academic year—evening; summer 1964—English 235 (3).) Reesing
- 239-40 *Studies in 17th Century Literature* (3-3)
Open to qualified undergraduates. *First half:* chief figures exclusive of Milton. *Second half:* Milton. (Not offered 1964-65.) Highfill
- 241-42 *Studies in Neoclassical Literature* (3-3)
Prerequisite: English 141-42. (Not offered 1964-65.) Reesing
- 251-52 *Studies in the Romantic Movement* (3-3)
Prerequisite: English 151-52. (Not offered 1964-65.) Columbus
- 261-62 *Studies in Victorian Literature* (3-3)
Prerequisite: English 161-62. (Not offered 1964-65.) Linton, Gajdusek
- 265-66 *Studies in 20th Century Literature* (3-3)
Eliot and his contemporaries. (Academic year—day; summer 1964—English 266 (3).) English 266
- 273-74 *Research Methods and Bibliographical Materials* (3-3)
For description of course see American Literature 273-74, page 265. Highfill
- 283-84 *Studies in the History of the British Drama and Theater* (3-3)
Prerequisite: English 135-36, or 183-84, or 175-76, or the equivalent. (Academic year—day.) Shepard
- 295-96 *Studies in the History of English Literary Criticism* (3-3)
Open to undergraduates with the approval of the instructor. (Not offered 1964-65.) The Staff
- 299-300 *Thesis* (3-3)

AMERICAN LITERATURE

FIRST GROUP

- 71-72 *Introduction to American Literature** (3-3)
A historical survey. *First half:* from the beginnings to the Civil War. *Second half:* from the Civil War to the present. Prerequisite: English 1 or 1X. (Academic year—day and evening; summer 1964.) Cole and Staff

* see footnote page 205

SECOND GROUP*

- 170 *The American Short Story* (3) Coberly
The historical development of the short story in America. (Summer 1964.)
- 171-72 *Studies in American Literature* (3-3) Lyon
Major factors in the national cultural tradition as shown by outstanding writers. Prerequisite: English 51-52 or 71-72. (Academic year—day and evening; summer 1964—English 171(3).)
- 173-74 *Major American Poets* (3-3) Lyon
Advanced critical study of significant writers and movements. *First half*: from beginnings through 19th century. *Second half*: the 20th century. (Academic year—day; summer 1964.)
- 175-76 *American Drama* (3-3) Cole
Historical and critical study of significant plays and forms. *First half*: from beginnings through 19th century. *Second half*: the 20th century. (Academic year—day; summer 1964—English 176 (3).)
- 177-78 *The American Novel* (3-3) Coberly
Historical and critical study of significant novels and short stories. *First half*: from beginnings through 19th century. *Second half*: the 20th century. (Academic year—evening.)
- 179-80 *Proseminar: Readings for American Thought and Civilization Majors* (3-3) Walker
Conferences and group discussions. (Academic year—day and evening.)

THIRD GROUP

- 271-72 *Seminar in American Thought* (3-3) Walker
Intensive consideration of specific periods and themes, primarily literary, in the history of American civilization. Prerequisite: English 171-72 or the equivalent. (Academic year—evening.)
- 273-74 *Research Methods and Bibliographical Materials* (3-3)
To acquaint graduate students with the principal sources of bibliography and with typical problems in research. (Not offered 1964-65.)
- 277-78 *Studies in American Fiction* (3-3) Coberly
Prerequisite: English 177-78 or the equivalent. Open to the undergraduate with the approval of the instructor. (Not offered 1964-65, summer 1964; English 177-78.)
- 279-82 *Reading Course in American Civilization* (3-3) Walker
A consideration of the principal descriptive and interpretative works dealing with American civilization, with emphasis on the interdisciplinary understanding of the subject. Prerequisite: at least one upper-division or graduate course in both American literature and American history. (Not offered 1964-65.)
- 287-88 *Reading Course in American Fiction* (3-3) Coberly
Primarily for graduate students, designed to cover the literature and the critical materials for which the student will be responsible on comprehensive and final examinations. (Academic year—evening.)
- 289-90 *Thesis* (3-3) The Staff

The Staff

One of the introductory literature courses, and English 4 or Spanish 51-52 is prerequisite to all advanced courses except English 101.

RELATED COURSES IN OTHER DEPARTMENTS

Classical Languages and Literatures 71-72, *Greek and Roman Backgrounds in Literature* (3-3)
 Education 136, *Teaching English in Secondary Schools* (3)
 History 151-52, *English History* (3-3)
 Philosophy 111-12, *History of Philosophy* (3-3)
 Speech B-C, *American Speech for Foreign Students* (3-3)
 Speech 102, *Oral Interpretation of Literature* (3)

French

See "Romance Languages and Literatures".

*Geography and Regional Science**

Professors R. D. Campbell (*Chairman*)†, H. W. Westermann‡, Samuel Van Valkenburg (*Visiting*)

Professorial Lecturer Victor Petrov

Associate Professor J. T. Davis

Assistant Professor A. R. Cassaway

Bachelor of Arts with a major in Geography (Departmental).—Prerequisite: the Arts and Letters curriculum, page 70, including Geography 51, 52, and Geology 1 and 22.

Required: in addition to the general requirements, pages 76-80, twenty-six semester hours of Geography beyond first-group courses, including Geography 103-4 and 180-99, twelve hours from Group A and six hours from Group B.

Group A: Geography 126, 127, 141-42, 145, 146. Group B: Geography 151, 153, 154, 155, 156, 161, 164, 165, 166.

American Thought and Civilization 101 *American Civilization* is recommended as a senior-year elective for Geography majors.

Bachelor of Arts with a major in Urban and Regional Development (Departmental).—Prerequisite: the Arts and Letters curriculum, page 70, including Geography 51, 52; Geology 1-2; and Statistics 91.

Required: in addition to the general requirements, pages 76-80, thirty-two semester hours of Geography which must include Geography 103-4, 133, 134, 141-42, and 173-74. Required also are Political Science 104 and Statistics 117. It is recommended that elec

* The Staff of Instruction is for the academic year 1963-64.

† On leave of absence spring semester 1963-64.

‡ On leave of absence 1963-64.

tives be chosen from among the following courses: Sociology 126, 135, 137, 147; Economics 161-62; Political Science 146; History 111-12; and Philosophy 121-22.

American Thought and Civilization 101 *American Civilization* is recommended as a senior year elective for Urban and Regional Development majors.

Bachelor of Arts with a major in Regional Science (Departmental).—Prerequisite: the Arts and Letters curriculum, page 70, including Geography 51, 52; Geology 1-2; Statistics 91; and Mathematics 21, 22, 23, 24.

Required: in addition to the general requirements, pages 76-80, thirty semester hours of Geography, which must include Geography 103-4, 179-80, and twenty-one semester hours selected from Geography 124, 125, 133, 134, 141-42, 173-74, 175-76. Required also are Statistics 117, 118, 157-58; Philosophy 121-22; Political Science 104.

American Thought and Civilization 101 *American Civilization* is recommended as a senior-year elective for Regional Science majors.

Master of Arts in the field of Geography. The general requirements, pages 83-85, including Geography 201-2, 205-6, 299-300.

Master of Arts in the field of Urban and Regional Development. The general requirements, pages 83-85, including Geography 205-6, 233-34, 253-54, and 299-300.

Doctor of Philosophy.—See pages 87-95.

Bachelor of Science in Cartography.—See pages 270-71, "Courses Offered in Special Programs" and the College of General Studies Catalogue for complete details.

Bachelor of Arts in Education with a teaching field in Geography. Prerequisite: the Education curriculum, page 72.

Required: the Geography option and the professional courses listed in the School of Education Catalogue.

FIRST GROUP

51 *Introduction to Geography* (3) The Staff
A study of place attributes and characteristics, patterns and associations of physical and cultural earth features. (Fall—day; spring—evening.)

52 *World Regions* (3) The Staff
The analysis of world regional divisions, descriptions and interpretation of region concepts, evaluation of regional differences as they affect the distribution and activities of man. (Fall—evening; spring—day.)

SECOND GROUP

103-4 *Cartography* (3-3) The Staff
A four-course credit is not given for the first half until the second half is completed. Principles of cartographic drafting; elementary map projections; map and graphic plan design and construction; uses and interpretation of maps. Prerequisite: Geography 51 and 52. Laboratory fee, \$11 a semester. (Academic year—Saturday morning.)

121 *Land Capabilities* (3)
Evaluation of land capabilities based on analysis of locational, physical, economic, and social land characteristics. Principles of site analysis and best use. Systems of means to estimate of area potential. (1965-66 and alternate years.)

125 *Transportation Complexes* (3)
A study of transportation networks and systems by which people, things, and ideas are given varying degrees of place utility. An analysis of the role of transportation in urban, national, and international relationships. (1965-66 and alternate years.)

126 *World Economies* (3) Cassaway
Description and comparison of differing regional economies—pastoral, agricultural, industrial; patterns of world distribution. (1964-65 and alternate years: fall—day.)

127 *World Population and Settlement* (3)

Gassaway

Population composition, structure, and distribution; characteristic world settlement patterns in terms of population organization. Assessment of factors contributing to population pressures, expositions and migrations, urban and rural settlement patterns and trends. (1964-65 and alternate years: spring—day.)

133 *Regional Industrial Structures* (3)

Westermann

The nature of the industrial complex, types and distribution of industry, principles of industrial and economic development planning. (1964-65 and alternate years: fall—day.)

134 *Location of Industry* (3)

Westermann

Structure and development of the major world industries, industrial location requirements, principles of industrial equilibrium. (1964-65 and alternate years: spring—day.)

139 *The Common Market* (3)

Reinstein*

Analysis of the forces leading to the economic movement toward Western European cooperation and unity; the present status; problems, trends; the outlook for future development; American interests and American policies. (Summer 1964.)

141-42 *Urban Settlement* (3-3)

Location, functions, and forms of cities; urban-rural relationships; the urban hierarchy; urban problems and the history of their development; the city of the future (1965-66 and alternate years.)

143 *Elements of Political Geography* (3)

Van Valkenburg

An introduction to systems of analyzing the political structures and functions of nations: political geographic theories and principles; interpretations and evaluations. (Fall—day.)

144 *Cultural Backgrounds of Western Europe* (3)

Koenig*

Cultural backgrounds of Western European nations, with emphasis on the general areas and cultural development which have the greatest impact on the Western Alliance today; significance of these factors to an understanding of contemporary American culture and the United States power position. (Summer 1964.)

145 *Psychological Geography* (3)

Van Valkenburg

A study of differences in national character structures; model behavior patterns and personality traits typical of various cultures; identification of these differences present in interpersonal relations and intercultural communications. (Fall—day.)

146 *World Political Geography* (3)

Van Valkenburg

Types and distributions of political systems, the major political units and associations of the world, factors which affect relative political power, areas of conflict and alliance. (Spring—day.)

Davis

151 *United States†* (3)

(Spring—day.)

Van Valkenburg

153 *Western Europe†* (3)

Regional geography of Western Europe; terrain, climates, population, economic activities, regions. (Summer 1964.)

154 *The Mediterranean†* (3)

(Not offered 1964-65.)

Gassaway

155 *Africa†* (3)

(Fall—day.)

* Arrangements for summer 1964.

† Required Survey. No prerequisite. For students particularly interested in the study of specific areas, special courses in the Department of Geography, History, and Political Science are recommended. For example: *European History and Problems of Latin America* (1964-65), *South American History and Problems of Latin America* (1964-65), *Recent Trends in Latin American Politics and Government* (1964-65).

- 156 *The Middle East** (3)
(Not offered 1964-65.)
- 161 *Latin America** (3)
(Not offered 1964-65.)
- 164 *Communist China** (3) Davis
(Fall—day.)
- 165 *Eastern and Southeastern Asia** (3)
(Not offered 1964-65.)
- 166 *The Soviet Union** (3) Gassaway
(1964-65 and alternate years: spring—day.)
- 169-70 *Field Trip to Western Europe* (3-3) Van Valkenburg
Five weeks of lectures, illustrated by visiting the places as they are discussed, covering physical, economic, political, and social geography. Countries included in the 1964 *Field Trip to Western Europe* are: England, The Netherlands, Belgium, France, Italy, Switzerland, and West Germany. (Summer 1964.)
- 173-74 *City Planning* (3-3) Davis
Optimum designs for future cities; theory and techniques of planning; action and implementation; information systems for city planning; methods of analysis of urban data; the design of proposed urban development and renewal. (Academic year—evening.)
- 175-76 *Regional Planning* (3-3)
Regional systems and subsystems; regional structures and functions; regional analysis; regional information systems; methods of economic and social planning; design of plans; government and implementation. (1965-66 and alternate years.)
- 179-80 *Readings in Urban and Regional Development* (1-1) Davis
(Academic year—as arranged.)
- 189-90 *Readings in Geography* (1-1) Gassaway
(Academic year—as arranged.)
- 199-200 *Theory of Regions* (3-3)
Area synthesis; comparison of the constructs region, system, and field; delineation, measurement, and analysis. (Not offered 1964-65.)

THIRD GROUP†

- 201-2 *Seminar: History and Philosophy of Geography* Van Valkenburg
(3-3)
A year course; credit is not given for the first half until the second half is completed. A study of the development of geographic thought and an attempt to develop a new, contemporary philosophy of geography. (1964-65 and alternate years: academic year—evening.)
- 25-6 *Area Data Collection and Analysis* (3-3)
A year course; credit is not given for the first half until the second half is completed. Lectures (1 hour), laboratory and field (3 hours). Sources of regional information; methods and systems of data collection; quantitative and qualitative methods of analysis; systems of synthesis. (1965-66 and alternate years.)

* Region. Survey. No presentation. For students particularly interested in the study of specific regions, regional courses in the departments of Economics, History, and Political Science are strongly recommended. For example: Economics 184-96, *European Economic History*; 184-97, *European Economic History and Problems of Latin American History*; 184-98, *Latin American Economic History*; and Political Science 377, *Recent Trends in Latin American Politics and Government*.

† Undergraduate or graduate status is required in all third group courses.

- 233-34 *Seminar: Regional and Urban Planning* (3-3) Westermann
 A year contract credit is not given for the first half until the second half is completed. Analysis of the planning function, major problems confronting the planner, contemporary status of planning—its areas of success and failure. (1964-65 and alternate years; academic year even-odd.)
- 241-42 *Seminar: Place and Culture* (3-3)
 A study of the culture traits which characterize various ethnic groups and differentiate people-place associations. (1965-66 and alternate years.)
- 243 *Seminar: Political Geography of Western Europe* (3) Van Valkenburg
 Discussions centering on the political entities of Western Europe; their structure and character, their interplay, their problems. (Summer 1964.)
- 244 *Seminar: Western Europe in the North Atlantic Community* (3) Alexander*
 Western Europe's role in the North Atlantic Community, geographic backgrounds, forces for unity and diversity in Western Europe and in the community. (Summer 1964.)
- 245 *Seminar: the Strategic Importance of Western Europe* (3) Allen*
 Analysis of the economic factors which underpin Western Europe's present and potential strategic importance; the military and political factors of her power position in the world setting. (Summer 1964.)
- 253-54 *Seminar: Problems of Developing Nations* (3-3)
 Traditional societies and their disruption; modernization, social change, and economic development; problems of urban and regional planning; foreign aid programs. (1965-66 and alternate years.)
- 265 *Seminar: Geography of the Soviet Union* (3) Petrov
 A detailed study of the area, including physical features, economic geography, natural resources, and industries. A discussion of the latest Soviet projects of the Soviet transportation system, of agriculture, and of industrial and population trends, with emphasis on population patterns along borderlands, especially the Sino-Soviet border. (Fall even-odd.)
- 266 *Seminar: Geography of China* (3) Petrov
 A study of the physical and economic geography of the country, including discussion of China's emerging industries, energy resources, transportation system. Special emphasis will be given to the population "explosion"—its distribution and significance. Emphasis also on regional geography, particularly on regions along the Sino-Soviet border, Manchuria, Tibet, Mongolia, Inner Mongolia, and Szechuan. (Spring even-odd.)
- 295-96 *Research* (3-3)
 (Academic Year—is arranged.)
- 299-300 *Thesis* (3-3) The Staff

COURSES OFFERED IN SPECIAL PROGRAM

In addition to the regular courses announced above, the University offers the following courses for students undertaking work toward the degree of Bachelor of Science in Cartography, which is administered by the College of General Studies. For information concerning the degree in Cartography, see the brochure on the subject.

GEOGRAPHY

- 51 *Introduction to Geography* (3)
 52 *World Regions* (3)

* Appointment for summer 1964

- 115-16 *Physical Geography* (3-3)
- 124 *Land Capabilities* (3)
- 125 *Transportation Complexes* (3)

CARTOGRAPHY

- 1 *Map Interpretation* (3)
- 11 *Cartographic Drafting and Descriptive Geometry* (3)
- 12 *Topographic Surveying* (3)
- 13 *Higher Surveying* (3)
- 17-18 *Elementary Photogrammetry* (3-3)
- 110 *Map Projections* (2)
- 111 *Map Reproduction* (1)
- 155 *Elementary Geodesy* (3)
- 156 *Geodetic Astronomy* (3)
- 160 *Theory of Errors and Geodetic Adjustments* (3)
- 191-92 *Map and Chart Construction* (3-3)

Geology *

- Professor Geza Teleki (*Chairman*)
- Professorial Lecturers C. L. Christ, Michael Fleischer, H. T. Evans, Jr., I. G. Sohn, Nicholas Hotton
- Associate Professors G. V. Carroll, J. W. Pierce
- Associate Professorial Lecturers Daniel Appleman, P. M. Kier, J. T. Dutro, Jr., E. G. Friedman
- Associate Frederick Collier

*Bachelor of Arts or Bachelor of Science with a major in Geology (Departmental).—*Prerequisite: the Arts and Letters or the Science curriculum, respectively, pages 50-51. Following first group courses must be included: Geology 1-2, 12; Chemistry 11-12; Physics 1-2 (or former 11 and 12; or 11 and 14); Mathematics 21 (for the degree of Bachelor of Arts); Mathematics 22 and 23 (for the degree of Bachelor of Science). In addition to the general requirements, pages 76-80, twenty-seven semester hours in Geology beyond first group courses for the Bachelor of Arts degree, thirty-three for the Bachelor of Science degree. The work of the junior and senior years must be approved by the Department. Two foreign languages are recommended for students planning to do graduate work. Philosophy 121-22 is recommended as a senior year elective.

Master of Arts or Master of Science in the field of Geology.—Prerequisite: the degree of Bachelor of Arts or Bachelor of Science, respectively, with a major in Geology from this University, or the equivalent.

Thesis. The general requirements, pages 83-85, including Mathematics 22 and 23 or the equivalent. Candidates must pass the Master's Examination (page 85) before registration for the second half of the thesis work. A passing knowledge examination in French, German, or Russian must be passed before the second half of the work is started.

*The Staff of Instruction is for the academic year 1963-64.

Master of the Science in the field of Geochemistry (an interdepartmental degree offered by the departments of Geology and Chemistry).—Prerequisite: the degree of Bachelor of Arts or Bachelor of Science, respectively, with a major in Chemistry or in Geology from this University, or the equivalent. Before admission to Master's candidacy, the student with an undergraduate major in Geology must demonstrate by credit or examination a knowledge of the content of Chemistry 21, 111, 112; Mathematics 22, 23; Physics 1-2, 51-52 (or former 11, 12, 13, 16; or 11, 14, 15, 16).

Required: the general requirements, pages 83-85, including Chemistry 213; Geology 181, 241, 246, 249-50. All prospective Master's candidates must take qualifying examinations in the fields of analytical and physical chemistry, marine geology, and sedimentation before the second half of the program is started. The Master's Examination (page 85) must be taken before registration for the second half of the thesis work. With permission of the interdepartmental committee on geochemistry the German language may be replaced by Russian.

Doctor of Philosophy.—See pages 87-95.

FIRST GROUP

- 12 **Introductory Geology** (3-3) The Staff
Lecture (2 hours), laboratory and field trip (2 hours). A survey course covering the principles of geology. Laboratory fee, \$6 a semester. (Academic year—day; summer 1964.)
- 12 **Rocks, Fossils, and Minerals** (3) Carroll
Lecture (2 hours), laboratory (3 hours). Introduction to rocks, fossils, minerals, ores, gems, and other mineral deposits. Prerequisite: Geology 1 and high school chemistry, or permission of the instructor. Laboratory fee, \$8. (Spring—day.)
- 22 **Physiography** (3) Telek
Lecture (3 hours), laboratory (2 hours). Interpretive description of the features of the earth's surface; relief configurations of the world. Prerequisite: Geology 1 or permission of instructor. Laboratory fee, \$5. (Spring—day.)

SECOND GROUP

- 101 **History of Geological Sciences** (2) Telek
Lectures on the development of geological thought and the history of geological and related sciences. (Fall—day.)
- 103 **Development of Scientific Thought** (3) Telek
(Summer 1964.)
- 107 **Dynamic Geology** (3) The Staff
Lecture (3 hours), recitation (1 hour). The interrelation of endogenic and exogenic forces in the process of sedimentation and vulcanism; geomorphological and geoclimatic aspects of epicontinental and geosynclinal areas. Prerequisite: Geology 1; Physics 1-2 (or former 11 and 12); or permission of the instructor. (Fall—day.)
- 111-12 **Mineralogy** (3-3) Carroll
A year country credit is not given for the first half until the second half has been completed (except for chemistry majors who may receive credit for the first half).
Lecture (2 hours), laboratory (3 hours). *First half:* morphological crystallography and elementary aspects of optical crystallography with their application to the identification of minerals. *Second half:* optical mineralogy; identification of non-crystalline minerals by use of the polarizing microscope. Prerequisite: Geology 1 and 12; Physics 1-2 (or former 11 and 12), or permission of the instructor. Laboratory fee, \$10 a semester. (Academic year—day.)
- 115 **Petrography** (4) Carroll
Lecture (2 hours), laboratory (4 hours). Megascopic and microscopic identification and classification of common rocks. Prerequisite: Chemistry 11-12; Geology 111-12. Laboratory fee, \$10. (Fall—day.)

- 116 Sedimentary Petrography (4)** Pierce, Carroll
Lecture (2 hours), laboratory (4 hours). The mineralogy and chemistry of sediments and sedimentary rocks; identification, description, and classification of sedimentary rocks with megascopic and microscopic methods. Prerequisite: Chemistry 11-12; Geology 111-12. Laboratory fee, \$10. (Spring—day.)
- 117 Introduction to Petrology (3)** Carroll
Lecture (2 hours), laboratory (1 hour). Lectures on petrogenetic theory with emphasis on igneous and metamorphic rocks; laboratory work on the diagnosis of rock groups by polarizing microscope; determination of mineralogical and textural characteristics. Prerequisite: Geology 115. Laboratory fee, \$10. (1965-66 and alternate years.)
- 122 Structural Geology (3)** The Staff
Lecture (2 hours), laboratory and field trips as arranged. Genetic interpretation of geologic formations on the basis of their structures, with emphasis on applications to geological field work. Prerequisite: Geology 1-2 or 1 and 12. (Spring—day.)
- 123 Tectonics (3)** The Staff
Lecture (1 hour), laboratory (4 hours). Introduction to specialized techniques of structural analysis, and to tectonic theory. Prerequisite: Geology 122. Recommended: Applied Science 3. (Fall—evening.)
- 125 Marine Geology (3)** Pierce
Lecture and map work. Principles of oceanography and submarine geology; geology of the deep sea; topography, crustal structure, sedimentary processes, and marine environment. Prerequisite for geology majors: Geology 1-2 or 1 and 12; for students in fields other than geology, permission of the instructor. (Fall—day.)
- 128 Geomorphology (4)** Teleki
Lecture (2 hours), laboratory (2 hours), field trips as arranged. Nature and evolution of earth forms; interpretation of maps and aerial photographs. Prerequisite: Geology 1-2 and 107. (Spring—day.)
- 130 Photointerpretation (4)** Pierce, Teleki
Lecture (2 hours), laboratory (3 hours). Principles of photogrammetry, interpretation of geographical and geological features on aerial photographs, evaluation of data with stereoscopic methods. Laboratory fee, \$10. (1965-66 and alternate years.)
- 151-52 Invertebrate Paleontology (3-3)** Kauffman
Lecture (2 hours), laboratory (3 hours), field trips as arranged. Classification and evolution of fossil invertebrates, paleontology of invertebrate organisms. Prerequisite: Geology 1-2 or 1 and 12. Laboratory fee, \$8 a semester. (Academic year—evening.)
- 151 Vertebrate Paleontology (3)** Hotton
Lecture (2 hours), laboratory or field as arranged. General features of vertebrate evolution and evolution as illustrated by the fossil record; problems of paleontology and adaptation, where appropriate. (Spring—evening.)
- 157 Methods in Paleontology (3)** Sohn
An introduction to the principles and techniques of paleontological research, including the use of zoological nomenclature. Prerequisite: Geology 151-52. (1965-66 and alternate years.)
- 163 Sedimentation (4)** Pierce
Lecture (2 hours), laboratory (4 hours). Principles of sedimentation, analysis and interpretation of sedimentary processes and environments; laboratory experiments in the dynamics of sedimentary particles. Prerequisite: Geology 12 and 107. Laboratory fee, \$10. (Fall—evening.)
- 166 Stratigraphy (4)** Pierce
Lecture (2 hours), laboratory (4 hours). Sedimentation, facies, evaluation of stratigraphic boundaries, principles of correlation, applied stratigraphic geology. Prerequisite: Geology 107, 115, 122, 163. (1965-66 and alternate years.)

- 173 Regional Geology (3)** The Staff
Lecture (3 hours), recitation (1 hour). Lecture and map work on the regional distribution of geological formations and structures. This course may be reflected for credit. Prerequisite: Geology 107, 122, or permission of the instructor. (Fall—day.)
- 181 Oceanography I (3)** The Staff
Chemical and physical properties of sea water, movements of water masses, meteorological interrelations, ecology of marine plants and animals. Prerequisite: Chemistry 11-12, Geology 125, Physics 14 and 15. (Fall—day.)
- 182 Oceanography II (3)** The Staff
Boundary processes and interactions between sea water and the atmosphere, principles of dynamics and their application to motion and distribution of variables, acoustics of water masses, review of recent literature and problems. Prerequisite: Geology 181. (Spring—day.)
- 191 Laboratory Techniques I (2)** The Staff
Lecture (1 hour), laboratory (2 hours). An introduction to photographic procedures and techniques for paleontological and petrographic work. Laboratory fee, \$15. This course may be repeated for credit with the approval of the Department. (Fall—Saturday morning.)
- 192 Laboratory Techniques II (2)** Collier
Lecture (1 hour), laboratory (3 hours). An introduction to laboratory machinery and techniques, preparation of thin sections, grinding and polishing techniques, fossil preparation, organization and handling of collections. Laboratory fee, \$15. This course may be repeated for credit, with the approval of the Department. (Spring—Saturday morning.)

THIRD GROUP

- 202 Geometrics (3)** Pierce
Lecture (2 hours), laboratory (as arranged). Application of statistics to geological and paleontological problems, quantitative and mathematical approach. Prerequisite: Mathematics 23 or permission of the instructor. Laboratory fee, \$10. (Spring—evening.)
- 205-6 Seminar in Geology (3-3)** The Staff
Special topics. Does not repeat itself and may be elected in successive years. (Acad.)
- 211 X-ray Crystallography (3)** Christ
The structure of crystals as determined by the X-ray method. (Fall—evening.)
- 212 Crystal Chemistry* (3)** Evans
Chemistry of the solid state. Bonding and coordination and the role of crystalline structure in chemistry and mineralogy. (Spring—evening.)
- 221 Coastal Morphology (3)** Teleki
Lecture (2 hours), laboratory (2 hours). Morphological analysis of the features and processes of coastal zones. Survey of the coastal zone types of the world. Prerequisite: Geology 128. (Spring—day.)
- 241 Geochemistry* (3)** Fleischer
Principles and theories on the abundance, relationships, and the distribution in the various rock and mineral species. (1965-66 and alternate years.)
- 242 Experimental Geochemistry (3)** The Staff
Recent advances in geochemistry, instrumental methods and their application. Special topics. Does not repeat itself and can be reflected for credit. Prerequisite: Chemistry 111, 112; Geology 241. (1965-66 and alternate years.)

* Prerequisite: an adequate background in physics and chemistry, to be determined in conference with the instructor.

244 Isotope Geology* (3)**The Staff**

Investigation of geological phenomena by means of stable and unstable isotopes of elements and of changes in their abundance. (1965-66 and alternate years.)

246 Marine Geochemistry (3)**The Staff**

Lecture (2 hours), laboratory (as arranged). Chemical composition and physical properties of sea water, chemical composition of marine sediments and their alterations, thermodynamics of sea water, biochemical activity in the oceans, methods of analysis and problems of measuring. Prerequisite: Geology 241. Laboratory fee, \$18. (Spring—evening.)

249-50 Seminar in Geochemistry (2-2)**The Staff**

Independent topics each semester. Can be elected for either semester. Does not repeat itself and can be repeated for credit. (Academic year—as arranged.)

251-52 Micropaleontology (4-4)**Sohn**

Lecture (2 hours), laboratory as arranged. Identification with the binocular microscope of Ostracoda and other fossil micro-organisms. Micropaleontological techniques, paleontological research methods, taxonomy, and paleoecology. Age determination and correlation of stratigraphic units. Laboratory fee, \$12 a semester. (Academic year—evening.)

257-58 Seminar in Paleontology and Paleogeology (3-3)**The Staff**

Independent topics each semester. Can be elected for either semester. Does not repeat itself and can be repeated for credit. (Academic year—as arranged.)

267-68 Seminar in Stratigraphy (3-3)**The Staff**

Independent topics each semester. Can be elected for either semester. Does not repeat itself and can be repeated for credit. (Academic year—as arranged.)

275-96 Research (arr.)**The Staff**

Research on problems approved by the Staff. Open to qualified students with advanced training. Laboratory fee, \$6 a semester hour. (Academic year—as arranged.)

299-300 Thesis (3-3)**The Staff**

Academic year—as arranged.)

Germanic Languages and Literatures[†]

Professors W. K. Legner (Chairman), Gretchen Rogers

Associate Professor J. C. King

Assistant Professors H. D. Osterle, Klaus Thoenelt

Associate Anne Cordero

Bachelor of Arts with a major in Germanic Languages and Literatures (Departmental).

Prerequisite: the Arts and Letters curriculum, page 70.

Required: in addition to the general requirements, pages 76-80, German 51-52, plus various semester hours in German courses, above the first group; reasonable proficiency

in German; an adequate background in physics and chemistry, to be determined in conference

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in speaking and writing German (ability equivalent to the satisfactory passing of German 179-200); History 39-40 or the equivalent; six semester hours in Philosophy selected with the approval of the adviser. Majors in German are strongly advised to study French.

Master of Arts in Germanic Languages and Literatures.—Prerequisite: a Bachelor of Arts degree with a major in Germanic Languages and Literatures from this University, or the equivalent.

Required: the general requirements, pages 83-85, including a reading knowledge of French and a thesis in the field of German literature or linguistics.

Master of Arts in the field of Linguistics (an interdepartmental degree offered by the departments of Germanic Languages and Literatures and Romance Languages and Literatures).—Prerequisite: a Bachelor of Arts degree, preferably with a major in French, German, or Spanish at this University, or the equivalent, and the approval of candidacy by the Committee on Linguistic Study.

Required: the general requirements, pages 83-85, including a thesis and twenty-four semester hours of second-group courses selected in consultation with the chairman of the department directing the Master's program and approved by the Committee in Linguistic Study. The candidate's program will normally be selected from courses in Anthropology, English, French, General Courses in Romance Languages and Literatures, German, Mathematics, Philosophy, Psychology, Slavic Languages, Spanish, and Statistics listed on pages 321-22.

Doctor of Philosophy.—See pages 87-95

Bachelor of Arts in Education with a teaching field in German.—Prerequisite: the Education curriculum, page 72.

Requires the German option and the professional courses listed in the School of Education Catalogue.

FIRST GROUP

1-2 First-year German (3-3)

A year course; credit is not given for the first half until the second half is completed. The essentials of German grammar; translation of easy prose. Three classroom periods a week plus one period of aural-oral practice in electronic language workshop. Workshop fee, \$6 a semester. (First half: fall—day and evening; spring—day; summer 1964. Second half: fall—day; spring—day and evening; summer—1964.)

The Staff

3-4 Second-year German (3-3)

A year course; credit is not given for the first half until the second half is completed. Selections from modern German prose; continuation and review of grammar. Three classroom periods a week plus one period of aural-oral practice in electronic language workshop. Workshop fee, \$6 a semester. Prerequisite: German 1-2 or two years of high school German. (First half: fall—day and evening; spring—day; summer 1964. Second half: fall—day; spring—day and evening; summer—1964.)

The Staff

5-6 Intensive First-year German (5-5)

A year course; credit is not given for the first half until the second half is completed. This course covers the same material as German 1-2, with greater depth because of additional attention to conversation, comprehension, reading, and writing. Five classroom periods a week plus one period of aural-oral practice in electronic language workshop. Workshop fee, \$6 a semester. (Academic year—day.)

The Staff

7-8 Intensive Second-year German (5-5)

A year course; credit is not given for the first half until the second half is completed. This course covers the same material as German 3-4, with greater depth because of additional attention to conversation, comprehension, reading, and writing. Five classroom periods a week plus one period of aural-oral practice in electronic language workshop. Workshop fee, \$6 a semester. (Offered 1965-66.)

The Staff

9-10 German Conversation and Composition (3-3)

Aural training, oral practice in electronic language workshop. Workshop fee, \$6 a semester. (Academic year—day.)

Osterle
Workshop fee, \$6 a semester.

- 17 *Beginning German for Reading Examination Candidates* (0) The Staff
Specially for graduate students with little or no German, who are preparing for reading examinations. No academic credit. Tuition fee, \$120. (Fall and spring—evening; summer 1964.)
- 40 *German Readings for Nonmajor Students* (3) The Staff
Primarily for graduate students preparing for reading examinations. Undergraduates admitted with permission of the instructor. No academic credit for graduate students. Prerequisite: German 4 or 47, or the equivalent. (Fall and spring—evening; summer 1964.)
- 51-52 *Introduction to German Literature* (3-3) Osterle
Prerequisite: German 4 or the equivalent. (Academic year—evening; summer 1964.)

SECOND GROUP

- 103-4 *Goethe's "Faust"—Parts I and II* (3-3) Legner
(1964-65 and alternate years: academic year—day.)
- 131-32 *German Literature of the 18th Century* (3-3) Thounelt
The age of Lessing, Goethe, and Schiller. (1965-66 and alternate years.)
- 141-42 *German Literature of the 19th Century* (3-3) King
Romanticism, Biedermeier period, Young Germany, Realism. (1965-66 and alternate years.)
- 151-52 *German Literature of the 20th Century* (3-3) Osterle
(1964-65 and alternate years: academic year—evening.)
- 179-80 *Advanced Composition for Undergraduate and Graduate Majors* (1-1) King, Legner
(Academic year—as arranged.)

THIRD GROUP

- 201-2 *Middle High German* (3-3) Legner
(1965-66 and alternate years.)
- 205-6 *Gothic* (3-3) Legner
Introduction to the comparative study of Germanic languages. (1964-65 and alternate years: academic year—day.)
- 209-10 *Old High German* (3-3) King
(1964-65 and alternate years: academic year—day.)
- 213-14 *Old Norse* (3-3) Allee
(1965-66 and alternate years.)
- 219 *Teaching German in College* (3) The Staff
Methodology, observation, and apprenticeship in college classes and the language work shop. (Fall—as arranged.)
- 223-24 *Linguistic Analysis of Modern German* (3-3) King
Treatment of phonetics, phonemics, morphology, and syntax. (1966-67 and every third year.)
- 225-26 *Seminar: Linguistics* (3-3) King, Allee
Bibliography, methodology, readings, and research problems. (1965-66 and every third year.)
- 227-28 *Sanskrit: Introduction to Indo-European Linguistics* (3-3) King
Introduction to Sanskrit and literature. (1964-65 and alternate years: academic year—

- 229 *German Literature of the 15th and 16th Centuries* (3) Legner
Transition from chivalric to bourgeois literature. The eras of Humanism and the Reformation as reflected in the principal literary works. (1965-66 and alternate years.)
- 230 *German Literature of the 17th Century* (3) Legner
Imitation of foreign models. The literary societies. Preciosity. The beginnings of realism in the novel. Pietism. (1965-66 and alternate years.)
- 231-32 *German Classicism* (3-3) Thoenelt
An advanced study and critique of the literature of the Goethezeit. Prerequisite: German 131-32 or the equivalent. (1964-65 and alternate years; academic year—evening.)
- 241-42 *Seminar: German Romanticism* (3-3) Thoenelt
Treatment of individual writers, groups, motifs, and tendencies. (1964-65 and alternate years; academic year—evening.)
- 251-52 *Seminar: Studies in 20th Century German Literature* (3-3) Osterle
Special projects in fiction, drama, poetry, and criticism. (1965-66 and alternate years.)
- 261-62 *German-English and German-American Literary Relations* (3-3) Osterle
Influence of individual writers, with emphasis on Shakespeare and Goethe. Comparative studies of major genres. Sociology of literature. (1964-65 and alternate years; academic year—evening.)
- 263-64 *Evolution of the French and the German Novel from the 17th to the 20th Century* (3-3) Thoenelt
Influences, analogies, and contrasts. Motif and style studies. (1965-66 and alternate years.)
- 271-72 *Seminar: German Literature* (3-3) The Staff
Bibliography, methodology, readings, and research problems. (1965-66 and alternate years.)
- 299-300 *Thesis* (3-3) The Staff
Required of all candidates for the Master's degree in German. (Academic year—

Government and Business*

Professors R. D. Kennedy (*Emeritus*), A. R. Johnson (*Emeritus*), J. L. Jassup, J. C. Dockeray (*Chairman*), D. S. Brown, A. M. Woodruff, F. H. Gibbs, G. C. Jantzen, R. B. Eastin, R. F. Ericson, G. L. Lippitt, Edwin Lewis, F. H. Carroll, Waldo Siders, K. E. Strommen

Professorial Lecturers S. N. Alexander, C. G. Berns, J. L. Buckler, C. W. Chelton, L. C. Collins, Frank Higginbotham, C. E. Houston, Robert Kaye, J. L. Keegan, K. F. McClure, Edward McGrenky, J. P. Murphy, M. E. Osdon, J. M. Parsons, F. I. Shaffer, Clark Simpson, I. E. Steele, J. N. Stonestadt, Clark Tibbatts, W. G. Torpey, C. E. Goode, M. H. Schwartz, Tom Kouzes, C. U. Letourneau, Ben Pomeroy

* The Staff of Instruction is for the academic year 1963-64.

Associate Professors F. C. Kurtz, Leon Gintzig, D. R. Cloutier, J. C. Brown, E. W. Camp, J. W. Coughlan, C. M. Mickey (*Research*), J. H. Walters, Jr.

Associate Professorial Lecturers C. M. Campbell, O. C. Disler, J. F. Doubleday, Samuel Humes, George Idelson, V. B. Lewis, J. A. Morrow, Ross Pollock, John Provan, P. C. Tosini, W. W. Brownholtz, E. E. Pontius, Norman Beckman

Assistant Professors H. R. Page, R. E. Griffiths, A. D. Larson, G. E. Conner, M. G. Gallagher, L. C. Smith

Lecturers R. J. Bond, Jerome Bracken, C. J. Brinkman, D. K. Good, F. X. McKenna, J. F. Regan, D. E. Russell, L. E. Thus, D. E. Van Tijn, Jr., G. R. Allen, Jr., J. E. Daly, Jr., Richard Foster, Aladino Cavazzi, J. F. Lieblich, O. B. Martinson, R. W. Perkins, J. A. Schaffer, Marjorie Quandt

Instructor J. R. Roman, Jr.

Associate Charles Eskew

Associate in Arts (two-year terminal curriculum in Accounting).—For curriculum see page 75.

Bachelor of Business Administration with a major in Accounting or Business Administration.—See pages 163–68.

Master of Arts in Government in the fields of Public Administration or Personnel Administration.—See pages 168–71, 173.

Master of Business Administration in the fields of Accounting, Business Administration, Health Care Administration or Personnel Administration.—See pages 169–70, 173–77.

Master of Public Administration in the fields of Public Administration or Personnel Administration.—See pages 169–70, 177–78.

Doctor of Business Administration or Doctor of Public Administration.—See pages 178–79.

Bachelor of Arts in Education with teaching fields in Business Education. Prerequisite: the Education curriculum, page 72.

Required: the Business Education option and the professional courses listed in the School of Education Catalogue.

ACCOUNTING

FIRST GROUP

1-2 *Introductory Accounting* (3-3)

The Staff

First half: basic principles underlying accounting records, preparation of the work sheet and financial statements, accounting for single proprietorships and partnerships. *Second half:* accounting for corporations and introduction to cost accounting, analysis of financial statements, and valuation and amortization problems. Prerequisite to Accounting 2: Accounting 1 or permission of the instructor. (First half: fall and spring—day and evening; summer 1964. Second half: fall and spring—day and evening; summer 1964.)

SECOND GROUP

101 *Cost Accounting* (3)

Coughlan

Theory and purposes of industrial cost accounting; treatment of systems of cost control and determination; analysis and interpretation of cost data; job, process, and standard cost systems. Prerequisite: Accounting 1-2. (Fall—day and evening; spring—day; summer 1964.)

111 *Financial Statement Analysis* (3)

Kennedy, Steele

Methods and techniques of preparing, analyzing, and interpreting financial statements for the guidance of operating executives, directors, stockholders, and creditors: influ-

ence of price level changes on accounting data; determination and interpretation of trends and ratios. Prerequisite: Accounting 1-2 or permission of the instructor. (Fall—day; spring—evening; summer 1964.)

115 *Survey of Accounting* (3)

Coughlan, Gallagher

An introduction to the basic principles underlying financial statements and financial records with emphasis on the use of accounting information in the management process. Study of theory, terminology, cost accounting, and interpretation of financial data. Not open for credit to Accounting or Business Administration majors. (Fall and spring—evening; summer 1964.)

121-22 *Intermediate Accounting* (3-3)

Kurtz, Simpson

First half: valuation and amortization problems of current assets, long-term investments, tangible fixed assets, intangible assets, and deferred charges; accounting for current, concurrent, contingent, and estimated liabilities. Prerequisite to 121: Accounting 2 or permission of the instructor. *Second half:* accounting for the organization; financing, operation, and dissolution of corporations and partnerships; basic principles of management and installment sales. Prerequisite to 121: Accounting 121 or permission of the instructor. (Academic year—day and evening.)

132 *Accounting Theory* (3)

Kennedy

Development of basic accounting principles and concepts with a review of some of the major contributions to accounting literature and with special reference to current thought as reflected in the pronouncements of the American Institute of Certified Public Accountants and the American Accounting Association. Prerequisite: 6 hours of accounting. (Spring—day; summer 1964.)

141 *Governmental Accounting* (3)

Problems relating to governmental appropriation accounts, encumbrances, and time accounting. Emphasis on municipal and state government accounting with an introduction to federal accounting. Prerequisite: Accounting 1-2 or permission of the instructor. (Fall—evening.)

144 *Federal Accounting* (3)

Lewis

Accounting procedures in the Federal Government, with emphasis on agency level accounting, implementation of accrued expenditure legislation, and accounting support for continuous budgets. Accounts of United States Treasury; current concepts of debt, trust, obligation, and funds; account accounting and reporting. Prerequisite: Accounting 141 or permission of the instructor. (Spring—evening.)

161 *Income Tax Accounting* (3)

Gallagher

Problems involved in the federal income taxation of individuals and corporations, as well as the relationship between the accounting and financial accounting, social security taxes, and reporting. Accounting 1-2. (Fall—day and evening.)

162 *Federal Tax Practice* (3)

Gallagher

Advanced problems of federal tax practice such as the tax treatment of partnerships, estates, trusts, corporate organizations, foreign income and gifts; use of the tax services; assessment, collection, and refund procedures. Prerequisite: Accounting 161 or the permission of the instructor. (Spring—evening.)

171 *Auditing* (3)

Kurtz

Duties and responsibilities of auditors; principles and procedures of making audits; techniques of verifying each financial statement item; presentation of audit working papers and reports. Prerequisite: Accounting 1-2. (Fall—evening; summer 1964.)

172 *Auditing Practice* (3)

Kurtz

A critical study of the standards of audit reporting; an advanced study of certain auditing practical problems; and a study of current auditing topics to include the application of statistical sampling techniques to auditing; auditing electronic systems; and management systems reviews. Prerequisite: Accounting 171 or permission of the instructor. (Spring—evening.)

- 181 **Accounting Systems (3)** Lewis
Theory and procedure of designing and installing accounting systems for collecting, recording, analyzing, and presenting accounting data. Prerequisite: Accounting 101, 121-22, and 171, or permission of the instructor. (Fall—evening.)
- 191 **Advanced Accounting (3)** Coughlan, Steele
Consolidated statements, statement of affairs, realization and liquidation reports, and estate and trust accounting. Prerequisite: Accounting 1-2. (Fall—evening; summer 1964.)
- 193 **Business Budgeting (3)** Lewis, Buckler
Principles, techniques, and procedures involved in the development, installation, and operation of a system of budgetary control to aid in the management of commercial and industrial organizations. Prerequisite: Accounting 1-2. (Fall—day; spring—day and evening; summer 1964.)
- 196 **Management Decisions and Accounting (3)** Coughlan, Lewis
An analysis of the information required by management in making capital budgeting, inventory management, and other decisions, and an investigation of the past and prospective ability of the accountant to provide that information. Consideration will be given to the cash flow and probability data needed by modern management and to advanced cost accounting systems. Prerequisite: Accounting 1-2. (Spring—evening.)
- 198 **Professional Accounting Review (3)** Lewis
Review and coordination of the principles and techniques developed in the accounting curriculum, in preparation for general practice in the field of accountancy and for professional accounting examinations. Prerequisite: Accounting 101, 141, 162, 171, and 191, or permission of the instructor. (Spring—evening.)

THIRD GROUP

- 211-12 **Managerial Accounting (3-3)** Kennedy, Higginbotham
First half: analysis of the accounting system with special reference to the use of financial and operating records and accounting reports as tools of management; a study of valuation and amortization problems including the influence of price level changes on accounting data. Prerequisite: Accounting 1-2 or 115. *Second half:* a survey of internal accounting controls, commercial budgets, and cost accounting systems used by management in directing and controlling a business. Prerequisite: Accounting 211. Accounting 211 or permission of the instructor. (*First half* not offered 1964-65. *Second half:* summer 1964.)
- 215 **Survey of Managerial Accounting (3)** Coughlan, Buckler
Nature, preparation, analysis, and interpretation of accounting reports; study of cost accounting, business budgeting, and internal accounting controls with emphasis on their use in the management process. Prerequisite: Accounting 1-2 or 115 or permission of the instructor. Not available for credit to students taking accounting 211-12. (Fall and spring—evening.)
- 231 **Contemporary Accounting Theory (3)** Kurtz, Higginbotham
Advanced accounting principles and concepts and recent theories concerned with the valuation and amortization of assets and determination of income. Admission by permission of the instructor. (Not offered 1964-65.)
- 241 **Accounting and Related Disciplines (3)** Coughlan
A study of the relationship between accounting and such related disciplines as economics, statistical theory, and operations research with emphasis on what the accountant has to offer to these allied fields and to the new ideas and new requirements which these fields may offer to or impose upon accounting. Prerequisite: permission of the instructor. (Fall—evening.)

- 246 *Governmental Accounting and Budgeting Problems* (3) Lewis
Advanced principles and practices in federal accounting relationship to general policy and administration. Prerequisite: Accounting 144 or permission of the instructor. (Not offered 1964-65.)
- 275 *Internal Control and Auditing* (3) Coughlan, Kurtz
Internal accounting controls; review and appraisal of accounting systems, procedures, and managerial policies with respect to their effectiveness and profitability. Emphasis on the use of internal control and auditing as an aid to management. Prerequisite: Accounting 171 or permission of the instructor. (Summer 1964.)
- 295-96 *Seminar in Accounting* (3-3) Kennedy
Selected accounting research topics and problems: individual oral and written reports. Admission by permission of the instructor. (Academic year—evening.)
- 297-98 *Accounting Reading and Research* (3-3) The Staff
(Academic year—as arranged.)
- 299-300 *Thesis* (3-3) The Staff
(Academic year—as arranged; summer 1964.)

COURSES OFFERED IN SPECIAL PROGRAMS

In addition to the regular courses announced above, the University offers the accounting courses listed below for students enrolled in the following special programs: Navy Graduate Financial Management Program, Air Force Advanced Management Program, and Engineering Administration.

- 3 *General Accounting* (3) (Summer 1964)
278 *Survey of Internal Control and Auditing* (3)
293 *Budget Preparation and Administration* (3)

BUSINESS AND PUBLIC ADMINISTRATION

THIRD GROUP

- 201 *Advanced Administrative Management* (3) Eastin, Ericson
An advanced course in administration emphasizing principles and practices common to administrative units of all kinds. (Fall—day and evening; spring—evening; summer 1964.)
- 204 *Quantitative Factors in Administration* (3) Tosini
Developments in quantitative methods of administration. (Fall and spring—evening.)
- 205 *Seminar: Communication and Executive Action* (3) Morrow
Seminar in the communication processes. Research and analysis, identification of factors relating to receptivity; the dynamics of communication. (Spring—evening.)
- 206 *Personnel Management* (3) Tarpey
Basic principles; structure and organization of personnel offices; responsibilities; interagency relationships; personnel staffing, training, and work measurement. (Fall—evening; summer 1964.)
- 207 *Human Factors in Administration* (3-3) Eastin, Ericson, Pollock
Individual, group, intergroup, and other human behavior and development; application of social science research to administration. Practical applications will be emphasized. (Academic year—evening; summer 1964.)

- 262 *Contemporary Administrative Theory and Practice* (3) Ericson
Current theories and trends in management with particular attention to the behavioral sciences, communications and applicability of research. (Spring—evening; summer 1964.)
- 268 *Management Engineering* (3) Clewlow
Analysis of the techniques for initiation and implementation of management engineering programs, with emphasis on organization and methods surveys including the study of work measurement, work simplification, management audits, and other management improvement programs. (Fall and spring—evening.)
- 269 *Management and Information Systems* (3) Page
A survey course; the collection and processing of management information, management engineering, work simplification, development of methods, procedures, and systems; systems analysis. Primarily for graduate students in Health Care Administration. (Spring—day and evening.)
- 287 *Relation of Government to Business* (3) Cloutier
Activities of government in their relation to business management in such areas as labor relations, wages, production, and prices. Trend and change in economic activity and its bearing upon government policy. (Spring—evening.)

COURSES OFFERED IN SPECIAL PROGRAMS

In addition to the regular courses announced above, the University offers the following business and public administration courses for students enrolled in the Navy Graduate Financial Management Program and the Air Force Advanced Management Program.

- 266 *Personnel Management* (3)
- 267 *Human Factors in Administration* (3-3)
- 268 *Management Engineering* (3) (Summer 1964)

BUSINESS ADMINISTRATION

SECOND GROUP

- 101 *Introduction to Business* (3) Conner
The business environment; its effects upon the decision making process. (Fall—day and evening; spring—day.)
- 102 *Fundamentals of Management* (3) Ericson, Conner
Planning, organizing, directing, coordinating, and controlling the activities of the administrative unit; evolution of management thinking. (Fall and spring—day and evening; summer 1964.)
- 103 *Personnel Management* (3) Eastin, Stonesifer
Industrial personnel and manpower programs, organizations and policy in personnel activities. (Fall—day; spring—evening; summer 1964.)
- 104 *Problems in Personnel Management* (3) Eastin, Stonesifer
Principles of manpower management illustrated by cases drawn from business, industry, and government. Prerequisite: Business Administration 103. (Spring—evening.)
- 105 *Labor-Management Contracts* (3) Sommers
Management's role in the negotiation and administration of collective bargaining agreements, as essential to development of good labor-management relations. (Not offered 1964-65.)

109 Office Management (3)

Organization and layout of an office, use of office machines and appliances, planning and execution of work, supervision problems. (Fall and spring—evening.)

Doubleday

113 Real Estate (3)

Fundamentals of real estate practice; leasing and property management; valuation, financing, and taxation. (Fall—evening.)

Doubleday

121 Risk Management (3)

A general course in underlying principles of property, life, marine, and casualty insurance, and the function of insurance in the economic life of a business or individual. (Spring—evening.)

Campbell

122 Life Insurance and Estate Planning (3)

Life insurance contracts, their use in providing protection and estate development. (Spring—evening.)

Page, Roman

131 Business Finance (3)

Basic principles involved in the financing of business enterprises. Prerequisite: Accounting 1-2. (Fall—day; spring—day and evening; summer 1964.)

136 Credit Management (3)

Types and sources of credit information, credit relationships from the standpoint of the commercial bank and the commercial business enterprise. Prerequisite: Accounting 1-2. (Spring—evening.)

Dockeray, Shaffner

138 Investments (3)

Analysis of factors of investment credit with application to different types of investments, proper selection of investments for various classes of investors, regulation. Prerequisite: Accounting 1-2, Business Administration 131. (Spring—evening.)

Walters

141 Basic Marketing Management (3)

An introduction to marketing and marketing management in relation to our total economy and business management, consumer and demand analysis, retailing, wholesaling, major marketing management problems and policies with particular emphasis on major decision areas and tools. Prerequisite: Economics 1-2. (Fall—evening; spring—day; summer 1964.)

142 Marketing Management Problems (3)

Practical problems of retailers, wholesalers, and manufacturers considered through the use of cases and text material; fundamental considerations in marketing decisions and the nature of the problem-solving process. Prerequisite: Business Administration 141. (Not offered 1964-65.)

143 Marketing Research (3)

Principles and practices of marketing research with particular emphasis upon basic methods and techniques, sources and interpretation of data, and presentation of results. (Fall—evening.)

145 Sales Management (3)

Organization of the sales department, sales planning and forecasting, quotas, territories, performance standards, and analysis and control of distribution costs. Prerequisite: Business Administration 141. (Not offered 1964-65.)

Idelson

147 Advertising (3)

Advertising as a function of marketing and merchandising; uses and limitations of advertising as a tool of management; fundamentals involved in getting a finished advertisement before potential customers; evaluation, criticism, and control of advertising. (Fall—evening.)

150 Procurement and Materials Management (3)

Purchasing organization, procedures, and policies; market relationships; selection of sources and sources of supply; procurement information and records; evaluation of procurement practices in industry and government. (Spring—evening.)

- 158 **Traffic Management (3)** Kaye
Organization and records of traffic department, routing of shipments, services by carriers, rates and charges, relation of shipper to transportation agencies. (Spring—evening.)
- 161 **Commercial Law: Contracts, Sales, Agency, and Bailments (3)** Collins, McClure
(Fall—day and evening; summer 1964.)
- 162 **Commercial Law: Negotiable Instruments, Property, Mortgages (3)** Collins, Murphy
(Spring—day and evening; summer 1964.)
- 163 **Law in Relation to the Form of Business Units: Corporations, Partnerships, and Trusts (3)** Murphy
(Fall—evening.)
- 171 **Principles of Transportation (3)** Roman
Impact of transport on society; development, economic characteristics, services, rates, and regulation of the various modes of domestic intercity transportation. (Fall—evening.)
- 172 **Public Utilities (3)** Roman
Legal and economic meaning of the public utility concept; development, services, economic characteristics, ratemaking, and regulation of the various utility industries, with particular emphasis on electric, gas, telephone, and urban transit industries. (Spring—evening.)
- 173 **Commercial Motor Transportation (3)** Roman
Organization, management, services, economic characteristics, rates and regulation of motor transport firms; highways and highway financing considered from the point of view of both producers and users of the services. (Fall—evening.)
- 174 **Commercial Air Transportation (3)** Roman
Organization, management, services, economic characteristics, rates, and regulation of air transport firms; policies and activities of the government in the development, promotion, and control of air transport. (Spring—evening.)
- 175 **Introduction to Foreign Trade (3)** Kaye
Terminology, trade usages and practices, conditions essential to successful trading, economic bases of international trade, obstacles to trade, tariffs, impact of governmental controls on private trade. Prerequisite: Economics 1-2. (Fall—evening.)
- 176 **Exporting and Importing (3)** Kaye
Policy and operating problems of foreign trade, financing, documentation, packing and transportation of shipments, ocean marine insurance, and U. S. Customs procedure and formalities. (Not offered 1964-65.)
- 178 **International Business Operations (3)** Ogdon
Analysis of overseas projects according to purpose and type of organization; case studies involving development and management of overseas marketing programs and other operations in different areas of the world. (Spring—evening.)
- 181 **Manufacturing Production (3)** Page
Basic principles and methods of manufacturing production. Manufacturing facilities, plant and equipment. Illustrations selected from various process and fabrication industries. (Spring—evening.)
- 191 **Business Reports and Analyses (3)** J. Brown
Sources of management information, array and analysis of data, interpretation and presentation of the findings. (Not offered 1964-65.)
- 193 **Management Communication (3)** Eastin, J. Brown
A survey course in the problems of communication; written communication, style and format; oral communication; oral briefing and presentation; group leadership; rapid reading; completed staff work; and related subjects. (Fall—evening; spring—day.)

195 Controllership (3)

The duties, responsibilities, and place of the controller in a business organization; relations of controller to other departments and regulatory bodies; and the controller's relation to price setting and inventories, depreciation policies, internal auditing, expense control and budgeting; and financial reports to management, stockholders, and employees. Prerequisite: Accounting 1-2. Open to seniors. (Fall—evening.)

Eastin, Page

198 Case Problems in Management (3)

Principles and techniques of management illustrated by cases drawn from business and industry. Prerequisite: Business Administration 102, 105, 131, 141. (Fall and spring—day and evening.)

(Fall and

THIRD GROUP**209 Seminar: Personnel Management (3)**

Discussion of industrial personnel and manpower management, and research in advanced problems. (Fall—evening.)

Eastin

210 The Personnel Manager (3)

The job of the personnel manager and his place in the organization; relations of the personnel manager to other executives; the personnel manager's policy role, and his relations with the chief executive. Key problems of the senior personnel executive. (Spring—evening.)

Jessup

211 Personnel Management and Industrial Relations (3)

A survey of personnel management practices and procedures, including labor-management relations. (Fall—day.)

Tosini, Daly

218 Survey of Data Processing (3)

A survey of modern data processing systems with emphasis on the management problems associated with the installation and use of such systems. (Fall and spring—evening.)

Schwartz

219 Digital Computer Programming Concepts (3)

Machine functions and programmed control, instructions and programs, sub-routines, general purpose programming, business oriented programming languages. Prerequisite: Business and Public Administration 204 or permission of instructor. (Fall—evening.)

Schwartz

220 Comparative Digital Computer Systems (3)

Properties and capacities of the range of equipments in use today, special purpose business equipments, recent and prospective equipment developments. Prerequisite: Business Administration 219. (Spring—evening.)

Schwartz

221 Application of Digital Computers (3)

The integration of data processing in the regular operations of the business or government organization and in establishing flows of management information, systems planning, the impact of Automatic Data Processing on management organization and decision making. Prerequisite: Business and Public Administration 204 and Business Administration 220. (Fall—evening.)

Alexander

222 Seminar: Advanced Digital Computer Concepts (3)

Study of advanced problems in the design and application of computer systems. (Spring—evening.)

Bracken

227 Linear Programming (3)

Introduction to the vocabulary and methodology of management science through the study of linear programming techniques. Case studies. Prerequisite: Business and Public Administration 204. (Fall—evening.)

Bracken

228 Introduction to Operations Research for Management (3)

Operations research as an approach to the solution of management problems. Emphasis is on the relevance and limitations of operations research. Practical applications are examined. Prerequisite: Business and Public Administration 204. (Spring—evening.)

Bracken

- 231 *Corporate Financial Problems* (3) Dockeray, Houston
Financial practice in promotion, consolidation, and mergers; capital structure adjustments; and reorganization. (Fall—evening.)
- 232 *Seminar: Business Finance* (3) Dockeray, Houston
Research in advanced financial problems. (Spring—evening; summer 1964.)
- 237 *Investment Analysis* (3) Dockeray, Shaffner
An advanced course in the applications of investment principles and analytical techniques to the selection of investments. Prerequisite: Business Administration 138. (Fall—evening.)
- 238 *Seminar: Investments* (3) Dockeray, Shaffner
Research in investment problems, techniques of selection and the management of various types of funds. Prerequisite: Business Administration 138. (Not offered 1964-65.)
- 241 *Advanced Marketing Management* (3) Walters
Marketing management problems and policies in major decision areas of product planning, channels of distribution, advertising, personal selling, sales promotion, pricing, and development of integrated marketing programs. Marketing research and other tools useful in decision making. Case analysis. (Fall—evening; summer 1964.)
- 242 *Seminar: Marketing Theory* (3) Walters
Critical review of the development of marketing thought and important marketing literature. Special and current problems and/or trends in marketing and their impact on the firm and society. Prerequisite: Business Administration 241. (Spring—evening.)
- 243 *Advanced Marketing Research* (3) Walters
Marketing research as an aid to decision making and increased efficiency in marketing; marketing research process, critical appraisal of methods and results, applications of marketing research. Cases, selected readings, and research project. Prerequisite: a course in basic statistics. (Spring—evening.)
- 247 *Advertising Management* (3) Walters
Case studies and text material dealing with executive determination of advertising organization, basic strategy relative to marketing program, promotional program, advertising appropriation, preparation and scheduling of advertisements, media selection, and determination of effectiveness. Advertising research and economic and social aspects. (Fall—evening.)
- 248 *International Marketing* (3) Walters
Organization for international marketing, foreign demand analysis, product development and policies, marketing structure and trade channels, advertising and promotion problems and policies, pricing, credits and collections, and legal aspects. Particular emphasis on development of effective international marketing strategy. (Spring—evening.)
- 250 *Contract Administration* (3) McKenna
The management of government contracts with private suppliers. (Fall—evening.)
- 251 *Retail Management* (3) (Not offered 1964-65.)
Managerial problems and policies concerning financing, location, organization structure, merchandise policies, advertising and sales promotion, personnel management, operating and service policies, accounting and control, and other related retail management problems. Case analysis. (Not offered 1964-65.)
- 255-56 *Seminar: Foreign Trade* (3) Ogdon
Research, analysis, and discussion of foreign trade institutions, public and private. (Academic year—evening.)
- 257-74 *Readings in Business* (3-3) The Staff
Advanced readings in the fields of finance, marketing, and personnel management. Admission by permission of the instructor. (Academic year—evening.)

- 286 *Management in the Armed Forces* (3) Jesup
Special problems of military organization and management; applicability of business management techniques to the armed forces. (Not offered 1964-65.)
- 288 *Executive Leadership* (3) Krieger
Examination of principles and problems of executive leadership and development; extensive consideration of basic issues and guides to executive action in business and public administration; review of the literature, significant research findings, and practical illustrations. (Fall—evening.)
- 291 *Seminar: Business Management* (3) Ericson
Research on various phases of management as practiced in American industry. (Fall and spring—evening; summer 1964.)
- 293-94 *Business Research* (3-3) The Staff
(Not offered 1964-65.)
- 296 *Seminar: Financial Management* (3) Stromsen
Research on advanced problems of financial analysis and management. (Spring—evening.)
- 297 *Case Studies in Business Administration* (3) Jesup
Problems of management are analyzed with the view of developing a practical solution; cases are used to show the problems of personnel in marketing, industrial management, finance, etc. (Fall and spring—evening.)
- 299 *Thesis Seminar* (3) Dockeray and Staff
An examination of thesis standards, research philosophy, and methodology. (Fall)
- 300 *Thesis* (3) The Staff
(Fall and spring—as arranged; summer 1964.)

COURSES OFFERED IN SPECIAL PROGRAMS

In addition to the regular courses announced above, the University offers the following business administration courses for students enrolled in the following special programs: Navy Graduate Financial Management Program, Air Force Advanced Management Program, and Engineering Administration.

- 107 *Labor-Management Contracts* (3) (Summer 1964)
- 235 *Financial Management* (3)
- 253 *Procurement and Distribution* (3)
- 263-64 *Business Organization and Management* (3-3) (Summer 1964)
- 269 *Readings and Conferences in Controllershship* (2 or 3)
- 284 *Readings and Conferences in Management* (2)
- 290 *Research Seminar in Management* (3)
- 295 *Research Seminar in Controllershship* (3)

HEALTH CARE ADMINISTRATION

- 153-54 *Survey of Health Care Organization and Procedures* (3-3) Gintz
(Formerly Health Care Administration 150-51)

Lectures and discussions. (May be audited.) Primarily for students in Controllershship. Education in Health Care and related fields of medical care organizations who wish an over-all knowledge of organization and procedures used in hospitals, long-term care

facilities such as nursing homes, and homes for the aged. This is a two-semester sequence. (Not open to degree candidates in Health Care Administration.) Students wishing to take the course for graduate credit must take the Health Care Administration 203 laboratory. (Academic year—evening.)

202 *Introduction to Health Care Administration* (3) Griffiths

Lecture and discussion (2 hours), laboratory (2 hours). Survey of community health services, public health organizations, voluntary agencies, and private practitioners (with attention to state and national health resources); medical terminology, communicable diseases, environmental sanitation, and biostatistics. (Fall—day and evening.)

203 *Organization and Management* (3) Gintzig

Lecture and discussion (2 hours), laboratory (2 hours). The history and current character of institutional health care. Organizational functions and structure of various kinds of hospitals and clinics, including long-term care facilities such as mental hospitals, homes for the aged, nursing homes, and others related to health care administration. (Fall—day and evening.)

204 *Health Care Administration Planning and Support Agencies and Associations* (3) The Staff

(Formerly, Organization and Management II)
The functions performed and special support techniques of hospital, medical, public health, nursing home, planning, educational and similar associations. (Fall or spring—as arranged.)

205 *Hospital Management Procedures* (3) Letourneau, Foster.

Schaffer, Cavazzi
Lecture and discussion (2 hours), laboratory (2 hours). A survey of hospital law; a study of hospital forms, procedures, and systems; hospital programs pertaining to disaster relief, safety, fire prevention; personnel, purchasing, and volunteer services; and the operational peculiarities of hospital departments. (Fall as arranged; spring—day and evening.)

206 *Case Studies in Health Care Administration* (3) Gibbs

Discussion (2 hours), laboratory (2 hours). General ideas about administration as applied to practical cases. Emphasis on policy making, planning, controlling, and organizing in hospitals. It includes case applications of Health Care Administration Law. Prerequisite: Business and Public Administration 201 and Health Care Administration 203. (Spring—day and evening.)

207 *Management Analysis in Health Care Institutions* (3) Gintzig

Lecture (2 hours), laboratory (2 hours). Management Engineering, data processing and other methods of collecting, analyzing, reporting, and using information that can be made available to administrators of hospitals and other medical care institutions. Part of this time is devoted to an investigation on which written and oral reports are based. (Spring—as arranged.)

208 *Health Care Economics* (3) Camp

Lecture (2 hours), laboratory (2 hours). Medical economics including sources of hospital income; fund raising drives; methods of procuring, using, budgeting, and accounting for hospital funds; prepayment plans, impact on community of the cost of medical care. (Spring—day and evening.)

212 *Planning and Constructing Health Care Facilities* (3) Griffiths

Lecture (2 hours), laboratory (2 hours). Regional and specific aspects of long and short-term health care planning, designing, constructing, purchasing, equipping, and supplying. Prerequisites: Health Care Administration 202 and 203. (Spring—day and evening.)

213 *Administration of Health Care Systems* (3) The Staff

The various patterns of hospital and health care such as church ownership, proprietary, group practice, Salvation Army, governmental, industrial, unions, nursing homes, community, and their special characteristics. (Fall or spring—as arranged.)

- 221-22 *Fundamentals of Medical Science and Medical Terminology* (3-3) **Quandt**
 A study of the fundamentals of medical science and medical essentials presented through lectures in the medical specialties. Includes a study of terms related to all areas of medical science, hospital service, and the paramedical specialties. (Academic year—day and evening.)
- 223-24 *Introduction to Health Records Administration* (3-3) **Quandt**
 Lecture and discussion (2 hours), laboratory (2 hours). History of medical records, report preparation, coding and indexing procedures, ethics, methods of securing and preserving medical records, and medical record practices and procedures in areas such as radiology, pathology, outpatient department, and social services. (Academic year—day and evening.)
- 225-26 *Principles of Health Records and Problems in Medical Records Administration* (3-3) **The Staff**
 Lecture and discussion (2 hours), laboratory (2 hours). Research techniques and qualitative analysis pertaining to medical records. Ethics involved in handling records. Problems encountered in medical record departments in hospitals, clinics, and other essentially medical facilities. (Academic year—day and evening.)
- 229 *Health Records Administration Internship* (3) **The Staff**
 Four-month internship beginning in June of each year, in approved medical facilities under qualified medical records administrators. A final written report of a major work project, assignments for directed practical experience and practice in the use of standard equipment found in medical records departments. (Not offered 1964-65)
- 250 *Administration for Mental Care* (3) **The Staff**
 Special characteristics of administration required in mental hospitals, psychiatric sections of general hospitals, and others. (As arranged.)
- 260 *Administration for Long-term Care Facilities* (3) **The Staff**
 A survey of the medical and nursing procedures designed for administrators of long-term care facilities including nursing homes and facilities for the aged. (Fall-evening.)
- 261 *Business Procedures for Long-term Care Facilities* (3) **Capusan***
 Business procedures with special application to administration of facilities for long-term care including nursing homes and homes for the aged. (Spring-evening)
- 265-66 *Readings in Long-term Care Administration* (3-3) **The Staff**
 (Formerly Health Care Administration 262-63)
 Advanced studies in selected aspects of administration of long-term care facilities including nursing homes, homes for the aged, and others. (As arranged.)
- 267 *Social Gerontology for the Administrator* (3) **Tilbitts**
 The special characteristics of the elderly with which administrators of long-term care facilities should be acquainted. (Fall—evening.)
- 270 *Research in Health Care Administration* (3) **The Staff**
 Field research in health care administration. Student investigates some phase of health care administration. Primarily for doctoral candidates. Open to other graduate students with the consent of the instructor. (Fall or spring—as arranged; summer 1964.)
- 285-86 *Readings in Health Care Administration* (3-3) **The Staff**
 Supervised readings in some special areas or subdivisions of health care administration. Primarily for doctoral candidates. Open to other graduate students with consent of the instructor. (Academic year—as arranged; summer 1964.)
- 267 *Seminar: Integration of Health Care Administration* (3) **The Staff**
 Primarily for doctoral candidates. (Fall or spring—as arranged.)

* Appointment effective September 1964

- 288 *Seminar: Field Problem Studies in Health Care Administration* The Staff
(3)
Selected administrative issues and problems arising in health care facility situations are discussed and evaluated. (Fall or spring—as arranged.)
- 289-94-95 *Residency I* (3-3-3) Camp, Gibbs
Twelve-month residency, beginning each year June 1 or July 1. Work experience under a qualified preceptor, periodic seminars with the University staff, periodic written progress reports, and a written major report. (Other courses may be substituted for Health Care Administration 294-95 as appropriate.)
- 296, 97-98 *Residency II* (3-3-3) Gibbs
For selected students who take a second twelve-month residency.
- 299-300 *Thesis* (3-3) The Staff

PUBLIC ADMINISTRATION

THIRD GROUP

- 211 *Problems of Governmental Organizations* (3) The Staff
Analysis of the application of organizational theories and practices to government agencies, with particular emphasis on internal organization and control. Special problem areas are examined, such as decentralization, staff line and field headquarters relationships, and the role of committees. (Fall—evening; summer 1964.)
- 212 *Administration in Government* (3) D. Brown, Cloutier
A critical analysis of federal administrative organizations, their achievements and pathologies. The roles of Congress, the Presidency, the Courts, interest groups, political parties, and the public in the administrative process are studied with special attention to centripetal and centrifugal forces at work. (Fall—evening; spring—day.)
- 215 *Comparative Administrative Systems* (3)
Examination and analysis of the administrative systems of the major foreign governments with particular attention to practices applicable to administration in the United States. (Not offered 1964-65.)
- 216 *Administration of International and Supranational Activities** Jordan
(3 or 6) (JAU)
Analysis of the evolution and application of the administrative process in selected international and supranational activities. Problems of organization and management in multi-national supported and staffed activities. Prerequisite: Public Administration 215. (Spring—as arranged.)
- 217 *Seminar: Economic Development and Administration* (3) D. Brown
Examination of the theories of the transfer of administrative capability from one country to another, factors relating to the indigenous culture, strategies of aid, examination of specific national and supranational programs. (Fall—evening.)
- 218 *Staff Functions in Government* (3) Cloutier
Designed primarily to provide an understanding of the nature, use, and problems of the staff functions as tools of management. Survey of such staff areas as personnel, training, conference, procurement, property management, the attorney lawyer, security, public relations and information, planning, research, the secretariat, management engineering, auditing, accounting, and administrative services. (FAD—evening.)

* Offered jointly by The George Washington University and American University. Courses offered by GWU will be designated "JGW", courses offered at AU will be designated "JAU". GWU students transfer at this University.

- 225 *26. Internship in the Administrative Processes* (3-3) Sommers
This course is open only to persons selected by government agencies for participation in approved intern programs. (Academic year—as arranged.)
- 232 *Federal Personnel Procedures* (3) Torpey
Study of such personnel functions as recruitment, selection, placement, promotion, supervision, evaluation, classification, and training. Practical problems of personnel administration. (Spring—evening)
- 233 *Seminar: Manpower Development and Utilization* (3) Sommers
Research projects and case studies in ways and means of increasing employee potential, use of training programs, executive development, incentive systems. (Fall—evening; summer 1964.)
- 243 *Local Government Law** (3) Mallison
The decision-making processes in metropolitan and local communities; types and objectives of city, county, and special function local government units; intergovernmental units; intergovernmental relations; original organization and changes; local lawmaking; community planning and development. (Spring—evening)
- 244 *Administration in Metropolitan Governments* (3) Cloutier
Examination of public administration at the local level. Developments and trends growing out of the changing urban pattern. (Fall—evening.)
- 246 *Urban Dynamics* (3) Woodruff
(Formerly Business Administration 213)
Background course for the developing curriculum in city planning. The course traces the forces that lie behind investment decisions which in turn determine the development of cities. (Spring—evening)
- 251 *Governmental Budgeting* (3) Posner
The role of budgeting in management; the principles and practices of budgetary formulation and administration. (Fall—evening; summer 1964.)
- 252 *Seminar: Planning and Programming* (3) Parr
The administrative processes of planning and programming in government, relationships to budgeting, planning and programming as a basis of managerial control, evaluation of accomplishments. (Fall—evening; summer 1964.)
- 254 *Financial Management in the Federal Service* (3) Kreger
Function of financial management in federal agencies; special problems analyzed; comparison of the financial management (controllership) function in government and business. (Spring—evening.)
- 259 *Government Procurement and Property Management* (3) D. Brown
Principles and problems of government procurement; accounting and inventory, storage; development of specifications; property management. (Spring—evening)
- 260 *Seminar: Policy Formulation and Administration* (3) Strommen
Development of agency goals and objectives and administration of agency policies; influence of individuals upon them; factors involving informal organization and role of executive in furthering administrative policy. (Spring—evening.)
- 261 *The Public and the Administrator* (3) The Staff
The nature of the public interest, ways of determining public opinion, public opinion and the decision-making process, theories and methods of working with the public, interest groups, public relations and information programs. (Fall—evening)
- 271 *Reading and Conference Courses in Public Management and Administration* (3)
The purpose of this course is to provide advanced students with directed reading in specific areas of public management and administration. (Fall—evening)

* Same as Law 349

- 272 *Seminar: Public Personnel Administration* (3) **Sommers**
The purpose of this course is to provide advanced students with directed reading in specific areas of public personnel administration. (Spring—as arranged.)
- 297 *Seminar: Public Administration* (3) **The Staff**
Advanced research on selected phases of public administration. (Summer 1964.)
- 298 *Case Studies in Public Administration* (3) **Sommers, Cloutier**
(Formerly Public Administration 212)
Analysis and discussion of problems in public management by use of the case method. Spring—evening; summer 1964.)
- 299 *Thesis* (3) **The Staff**
An examination of thesis standards, research philosophy, and methodology. (Fall and spring—evening; summer 1964.)
- 300 *Thesis* (3) **The Staff**
Fall and spring—as arranged; summer 1964.)

COURSES OFFERED IN SPECIAL PROGRAMS

In addition to the regular courses announced above, the University offers the following public administration courses for students enrolled in the Air Force Advanced Management Program and in Engineering Administration.

- 251 *Governmental Budgeting* (3) (Summer 1964)
- 260 *Seminar in Policy Formulation and Administration* (3)

Greek

Hebrew

See "Classical Languages and Literatures".

History *

Professors E. L. Kayser, Wood Gray, H. M. Merriman, R. H. Davison (*Chairman*)
W. C. Davis†, R. B. Thompson
Professorial Lecturers R. P. Multhaupt, G. O. Kent
Associate Professors R. C. Haskett, R. P. Sharkey
Associate Professorial Lecturer J. I. Robertson, Jr.
Assistant Professors C. J. Herber, P. P. Hill, R. W. Kenney, Michael Gasster

* The Staff of Instruction is for the academic year 1963-64.
† On leave of absence 1963-64.

Bachelor of Arts with a major in History (Field-of-Study).—Prerequisite: the Arts and Letters curriculum, page 70, including History 39-40 and 71-72.

Required: the general requirements, pages 76-80, and the passing of the History major examination at the end of the senior year.

The major, centered on the study of the rise, development, and spread, and the continuing challenges of Western civilization, is attested by a major examination. Under the guidance of an adviser the student will arrange his program in History to attain a balanced coverage of (1) the rise of civilization in Europe to the eve of the French Revolution, (2) the development of non-Western civilizations and their interaction with the Western world, (3) the historic problems of modern industrial civilization from the beginnings of the Industrial Revolution, and (4) the relations of the major nations of Europe and America in their world setting since the Napoleonic Wars. A six-hour research seminar to give training in fundamental techniques is a required part of each major's program, and a proseminar (History 199-200) is offered as a means of integrating the student's understanding of the continuity of Western civilization. For details relating to the administration and content of the major, see the pamphlet on this subject, which is available in the offices of the Dean of Columbian College of Arts and Sciences and the Chairman of the History Department.

American Thought and Civilization 101 *American Civilization* is recommended as a senior-year elective for History majors.

Bachelor of Arts with a major in Latin American Civilization (Field-of-Study).—Prerequisite: the Arts and Letters curriculum, see page 70.

Required: the general requirements, pages 76-80, and the passing of the Latin American Civilization major examination at the end of the senior year. The coordinated field of knowledge upon which the student will be examined includes political and social history, economic development, governmental structures and international relations, and the principal literary works and writers of the Latin American republics. The Department of History provides a proseminar (History 197-98) intended to assist the student in preparing himself for the major examination. For further details, see the pamphlet, which is available in the Office of the Dean of Columbian College of Arts and Sciences.

American Thought and Civilization 101 *American Civilization* is recommended as a senior-year elective for Latin American Civilization majors.

Master of Arts in the field of History.—Prerequisite: the degree of Bachelor of Arts with a major in History from this University, or the equivalent, and the approval of the Department.

Required: the general requirements, pages 83-85. Of the twenty-four semester hours of required second- and third-group courses (exclusive of the thesis), at least six must be in third-group history courses; a maximum of six may be in a closely related field outside the Department of History as approved by the Department. Master's candidates are responsible for arranging with instructors of second-group courses for extra work, in order to receive graduate credit for such courses.

Master of Arts in the field of Latin American Civilization.—Prerequisite: the degree of Bachelor of Arts with a major in Latin American Civilization from this University, or the equivalent.

Required: the general requirements, pages 83-85. Course work and the comparative examinations will embrace political and social history, governmental structures and international relations, economic development, and principal literary works of Latin America. The thesis may be written in any one of these four fields. All courses must be approved in advance by the Advisor.

Doctor of Philosophy.—See pages 87-95.

Bachelor of Arts in Education with a teaching field in History.—Prerequisite: the Education curriculum, page 72.

Required: the History option and the professional courses listed in the School of Education Catalogue.

FIRST GROUP

- 39-40 *The Development of European Civilization in Its World Context* (3-3) Kayser, Herber, Kenny

Primarily for freshmen. *First half*: the political, social, economic, and cultural history of the Old World from ancient times to 1715. *Second half*: from 1715 to the present. (Academic year—day and evening; summer 1964.)

- 71-72 *The Development of the Civilization of the United States* (3-3) Haskett, Hill

Primarily for sophomores. *First half*: the political, social, economic, and cultural forces of the United States in their world setting from 1492 to 1865. *Second half*: from 1865 to the present. (Academic year—day and evening; summer 1964.)

SECOND GROUP*

- 105-6 *Introduction to the History of Science* (3-3) Multhauf

First half: the ancient natural philosophy and the growth of special sciences through the 17th-18th century scientific revolution. *Second half*: the main lines of development of astronomy, physics, chemistry, biology, and medicine from the mid-18th century to the scientific revolution of the early 20th century. Prerequisite: History 39-40 or a background in science. (Academic year—evening.)

- 109-10 *Ancient History* (3-3) Kayser

The political, social, and intellectual aspects will be considered. *First half*: the ancient Near East and Greece. *Second half*: Rome. (Academic year—day.)

- 111-12 *Medieval History* (3-3) Kayser

The political, social, and intellectual aspects will be considered. *First half*: from the 5th to the 12th century. *Second half*: from the 13th through the 16th century. (Not offered 1964-65.)

- 130 *Nationalism* (3) Kayser

The historical evolution of modern nationalism. (Summer 1964.)

- 131-32 *History of Germany* (3-3) Herber

The political, social, and cultural development of the German people. *First half*: from the Reformation to 1871. *Second half*: from 1871 to the present. (Academic year—day.)

- 141-42 *History of France* (3-3) Herber

A survey of the political, social, and cultural history of France. *First half*: from earliest times to 1815. *Second half*: from 1815 to the present. (Not offered 1964-65.)

- 145-46 *History of Russia* (3-3) Thompson

A 1100-year survey of the rise and revolution of Russia. *First half*: Russia under the Old Regime, 860-1900. *Second half*: Revolution and Soviet rule, 1900-1964. (Academic year—day.)

- 147 *Economic History of Europe* (3) Sharkey

European economic development since the Middle Ages with particular emphasis on the period following the Industrial Revolution. The evolution of capitalism and its varying impact upon the societies of Europe will be treated. (Fall—day.)

- 149-50 *European Diplomatic History* (3-3) Davison

Background of the European state system and of diplomatic practices and relations since the Congress of Vienna, with emphasis on the policies and actions of the great powers and their statesmen. *First half*: to 1878. *Second half*: since 1878. (First half: 1965-66 and alternate years. *Second half*: spring—evening.)

* History 39-40 is prerequisite to courses 109 through 132 and 137 through 196; History 71-72, to courses 111 through 134; either History 39-40 or 71-72, to courses 161 through 166.

- 151-52 *History of England and Great Britain* (3-3) Kenny
A general survey of the development of English civilization and its impact on Western culture. *First half:* to 1600. *Second half:* since 1600. (Academic year—day and evening; summer 1964.)
- 161 *Ancient Americans* (3) Davis
A study of the Maya, Aztec, Inca, and other early civilizations of North and South America. (Fall—day)
- 162 *Iberian Background of Latin America* (3) Davis
History of Spain and Portugal, with emphasis on developments leading to the rise and decline of the Spanish and Portuguese empires. (Not offered 1964-65.)
- 163 *Colonial Latin America* (3) Davis
Political, economic, social, and institutional developments in Spanish and Portuguese America from the conquest through the wars of independence. (Fall—evening.)
- 164 *South America since Independence* (3) Davis
Development of the independent South American states in the 19th and 20th centuries. (Alternate spring and summer terms: spring—day; summer 1964.)
- 166 *Mexico and the Caribbean since Independence* (3) Davis
A survey of the republics of Mexico, Central America, and the Caribbean islands. (Alternate spring and summer terms: summer 1965; spring 1966.)
- 170 *American Colonial History* (3) Haskett
The settlement of the British colonies, the development of provincial institutions, and the emergence of an American civilization in the 17th and 18th centuries. (Spring—day; summer 1964.)
- 171-72 *Social History of the United States* (3-3) Gray
Daily life, institutions, intellectual, and artistic achievements of the Agrarian Era, 1607-1861; and the Urban Industrial Era, 1861 to the present time. (Academic year—evening; summer 1964.)
- 173 *Representative Americans* (3) Gray
A biographical approach to national history. Some fifty significant and pivotal personalities in the development of the United States in government, business, science, religion, journalism, the arts, and social reform. (Fall—day.)
- 174 *Economic History of the United States* (3) Sharkey
An analysis of the process of economic growth in the United States from Colonial times to the present. The development of various sectors in the economy such as agriculture, transportation, manufacturing, and banking will be treated and their interdependence stressed. (Spring—day.)
- 175-76 *Political and Constitutional History of the United States* Haskett
(3-3) Ara
First half: to the eve of the Civil War. *Second half:* the Civil War to 1940. (Academic year—day; summer 1964—History 175 (3).)
- 177 *The South* (3) Robertson
Rise of the plantation system and slavery; the sectional conflict, and the problems and progress of the New South. (Spring—day)
- 179 *The Civil War* (3) Robertson
A survey of the causative factors leading to Civil War and of the social, political, literary, economic, and diplomatic aspects of the War itself; the immediate and long-range effects of the War on American life. (Fall—day.)
- 181-82 *Diplomatic History of the United States* (3-3) Merriman, H.
Tendencies toward isolation, expansion, and collectivism; disputes with foreign countries and their settlement; and the activities of the American secretaries of state and diplomatic agents. *First half:* to 1898. *Second half:* since 1898. (Academic year—day and evening.)

- 183 *Oversea Expansion of the United States* (3) Merriman
The political, economic, social, and cultural life of our outlying possessions. (Spring—day.)
- 184 *Canada and the United States* (3) Merriman
The historical background and main trends in the relationship of the two English-speaking peoples of North America. (Fall—day.)
- 187 *History of Modern China* (3) Gasster
China since 1840, with particular attention given to political developments. (Fall—day; summer 1964.)
- 188 *East Asia in World Affairs* (3) Gasster
The history of Chinese and Japanese relations with the West, emphasizing the roles of China and Japan in international politics from the middle of the 19th century to the present. (Spring—day.)
- 190 *History of India* (3) Thompson
The civilization of India and her neighbors from the beginnings to independence. (Not offered 1964-65.)
- 191-92 *Current History* (1-1)
Contemporary events in their world setting. (Not offered 1964-65.)
- 193 *History of the Near East* (3) Davison
The Byzantine, Arab, Persian, and Islamic backgrounds of Near Eastern history; the rise and decline of the Ottoman Empire; the action of European powers in the area; and the Ottoman breakup into the Turkish Republic and other successor states. (1964-65 and alternate years: fall—evening.)
- 195-96 *History of East Asia* (3-3) Gasster
The civilizations of China and Japan, with emphasis on cultural development and social organization. *First half:* from the beginnings to about 1800. *Second half:* the traditional societies on the eve of the modern era, and their responses to Western cultural influences since the middle of the 19th century. (Academic year—day and evening; summer 1964—History 196 (3).)
- 197-98 *Proseminar in Latin American Civilization* Davis, Robb, Sammons
(3-3)
Reading course for coordination and review. Open only to majors in Latin American Civilization. (Academic year—as arranged.)
- 199-200 *Proseminar: Readings for the History Major* Thompson, Gray
(3-3)
Limited to majors in History. Readings and discussions on main trends in the history of Western civilization, in its world setting, including representative selections from the classics of historical literature. (Academic year—day and evening.)

THIRD GROUP*

- 211-12 *Reading Course in Medieval History* (3-3)
Primarily for graduate students. (Not offered 1964-65.)
- 241-42 *Seminar in Modern European History* (3-3) Herber
Academic year—evening.
- 243 *Reading Course in Modern European History* (3) Davison
For graduate students. (Fall—day.)
- 245-46 *Seminar: Eurasian History* (3-3) Thompson
(Academic year—day.)

* Approval of the instructor is required for registration in each third-group course.

- 247-48 *Reading Course in Russian History* (3-3)
For graduate students. (Academic year—evening.) Thompson
- 249 *Seminar: European Diplomatic History* (3)
(Spring—day.) Davison
- 251-52 *Seminar: English History* (3-3)
(Academic year—day.) Kenny
- 261-62 *Seminar: Latin American History* (3-3)
(First half: not offered 1964-65. Second half: spring—day.) Davis
- 271-72 *Seminar: Social History of the United States* (3-3)
(Academic year—day.) Gray
- 273-74 *Reading Course in American Social History* (3-3)
(First half: spring—day. Second half: not offered 1964-65.) Gray
- 275-76 *Seminar: American Political and Constitutional History*
(3-3) Haskett
(Academic year—evening.)
- 277-78 *Reading Course in American Political and Constitutional History* (3-3) Haskett
For graduate students. (First half: 1964-65 and alternate years: fall—day. Second half: 1965-66 and alternate years—as arranged.)
- 279-80 *Reading Course in Economic History* (3-3) Sharkey
(Academic year—evening.)
- 281-82 *Seminar: Diplomatic History of the United States* (3-3) Merriman
(Academic year—day.)
- 285-86 *Reading Course in American Diplomatic History* (3-3) Merriman
For graduate students. (Academic year—as arranged.)
- 291-92 *Seminar* (3-3) The Staff
Prerequisite: approval of the Department. (Academic year—as arranged; summer) Davison
- 294 *Seminar: History of the Modern Near East* (3) Gaster
(Fall—evening.)
- 295-96 *Seminar: History of the Modern Far East* (3-3) The Staff
(Academic year—day.) (Academic year—as arranged; summer 1964)
- 299-300 *Thesis* (3-3)
Required of all candidates for the Master's degree specializing in history.
Academic year—as arranged; summer 1964

Home Economics*

Professor Kathryn Towne (Chairman)

Associate Professorial Lecturer Mary Osterndorf

Bachelor of Science in Home Economics.—See pages 145-46.

- 102 *Advanced Food Preparation* (3) Osterndorf
The application of the fundamental processes of food preparation to a wider range of food materials and various services for different occasions. Material fee, \$18. (Fall—day.)
- 71 *House Furnishing* (3) Towne
Home planning from the historic, artistic, economic, and sanitary viewpoints; home furnishings such as linens, dishes, floor covering, mattresses, etc. Material fee, \$5. (Fall—day.)
- 192 *The Home, Its Management and Equipment* (3) Towne
Economic management of the home; distribution of time and energy; problems in the selection, arrangement, and care of equipment. (Spring—day.)
- 193 *Supervision of Home Management* (3) The Staff
Field work under supervision. Designed to meet requirements of those preparing to teach in federally aided schools. (As arranged.)
- 195 *Special Problems* (3) The Staff
Individual investigation or study under the guidance of a member of the Staff. Topic for 1964-65: Tailoring. (Spring—day.)
- 197-98 *Proseminar* (3-3) The Staff
The study of the most recent materials and problems in the various phases of home economics. (Academic year—day.)

Institute for Sino-Soviet Studies

Kurt London, Director

For a description of the objectives and programs of the Institute, see pages 161-82. Information concerning courses to be offered jointly with American University will be available in the *Schedule of Classes* for the fall and spring semesters.

ECONOMICS

- 133 *The Economy of the Soviet Union* (3) Gekker
May be approved for graduate credit. (Fall—evening.)
- 267 *The Soviet Economy* (3) Gekker
Development of the Soviet-type economy, organization, production and processes, monetary, fiscal, production, allocative, foreign trade, economic growth. (Spring—evening.)

* The Staff of Instruction is for the academic year 1963-64

EDUCATION

- 281 *Seminar: the Educational System of the Soviet Union* (3)
(Fall—evening.)
- 282 *Seminar: the Educational System of Communist China* (3)
(Spring—evening.)

GEOGRAPHY

- 265 *Seminar: Geography of the Soviet Union* (3) Petrov
A detailed study of the area, including physical features, economic geography, natural and energy resources, and industries. A discussion of the latest Soviet projects, of the Soviet transportation system, of agriculture, and of multinational population trends, with emphasis on population patterns along borderlands, especially the Sino-Soviet border. (Fall—evening.)
- 266 *Seminar: Geography of China** (3) (JGW) Petrov
A study of the physical and economic geography of the country, including discussion of China's emerging industries, energy resources, transportation system. Special emphasis will be given to the population "explosion," its distribution and significance. Emphasis also on regional geography, particularly on regions along the Sino-Soviet border, Manchuria, Tibet, Mongolia, Inner Mongolia, and Sinkiang. (Spring—evening.)

HISTORY

- 245 *Seminar: Eurasian History* (3) Thompson
A seminar in which students prepare research papers in some selected area of Eurasian history. For the fall semester 1964, the selected area from which individual topics are chosen will be the Russian revolution. (Fall—day.)
- 248 *Reading Course in Russian History* (3) Thompson
A graduate course for weekly reading and discussion in Russian 19th and 20th century history. Political and intellectual movements reflecting the rise and fall of the revolutionary cycle will be emphasized. (Spring—evening.)
- 295-96 *Seminar: History of the Modern Far East I-II* (3-3) Gasster
First half: social and intellectual revolution in Modern China: the replacement of the scholarly gentry by the intelligentsia of the 20th century. Emphasis placed upon the radical change that took place after 1919. *Second half:* the development of United States Far Eastern policy since 1898, with emphasis on the coming of World War II and United States policy towards China since 1941. (Academic year—day.)

POLITICAL SCIENCE

- 215-16 *Seminar: the Sino-Soviet Blocs in World Affairs I-II* (3-3) London
First half: A study of the most significant issues of the Communist movement and its manifestations particularly in the Soviet Union and Red China; an examination of the concept and structure of the "world socialist system" and of inter-Bloc relations with special emphasis on the Sino-Soviet dispute. *Second half:* An examination of the political ramifications of the international Communist movement and Communist relations with the non-Communist world, with special emphasis on the nonaligned countries in Africa, Asia, and Latin America. (First half, fall—evening. Second half, (JGW): spring—evening.)

* Offered jointly by The George Washington University and American University. Classes offered at GWU will be designated "JGW", courses offered at AU will be designated "JAU". GWU students register at this University.

- 224 *Readings in Socialism and Communism* (3) Kraus
A reading course designed, on the basis of selected readings of both primary and secondary works, to introduce students to the most significant developments in pre-Marxian and Marxian socialism and Leninist communism. (Fall—evening.)
- 225 *Seminar: Theoretical Problems of Marxism-Leninism* (3) Kraus
Crucial theoretical problems, such as the nature of revolution, the dictatorship of the proletariat, the transition to communism, imperialism, and national liberation in their development from Marx and Engels to Lenin, Khrushchev, and Mao-Tse-tung. (Spring—evening.)
- 227 *Seminar: the Politics of Eastern Europe* (3) Maday
Comparative study of the principal political, social, and economic characteristics of the area; analysis of the events since World War II; the Soviet stake in the area; patterns of Soviet domination; efforts toward economic and political integration; the impact of the Sino-Soviet dispute; U. S. policy toward the satellite nations. (Fall—evening.)
- 230 *Seminar: Operational Techniques of International Communism* (3) Metzl
Strategy and tactics of the international Communist movement in the post Stalin period, with emphasis on the modus operandi of Communist parties, international and national Communist front organizations, and Sino-Soviet Bloc agencies in the free world. Prerequisite: a general understanding of Communist ideology and of the workings of political movements. (Fall—evening.)
- 231 *Seminar: the Sino-Soviet Conflict** (3) (JGW) Michael
A discussion of the background, development, and status of the conflict within the Communist movement, with special emphasis on the role of the Chinese Communists in the dispute. (Fall—evening.)
- 232 *Seminar: International Communication—the Sino-Soviet Orbit* (3) Karch
History and theory of communication; image factors—structure and national character; communication within the Communist orbit with emphasis on media; "socialist orbit" communication to the Free World; Western communication to the orbit, including VOA and BBC. (Spring—evening.)
- 233 *Seminar: Soviet Government and Politics* (3) Overstreet
An analysis of the theoretical and historical bases of the Soviet political system, and the socio-economic setting of its formation; the nature and role of the Party, government, and mass organizations; and selected problems of domestic and foreign policy. (Fall—evening.)
- 234 *Seminar: Soviet Internal Policy* (3) Block
An examination of how Soviet organization and administration and Soviet policies in social and economic, nationality and military matters have been influenced by revolutionary ideas, by traditions, and by accidental events and how the leaders have applied these policies to maintain their power and to transfer man, society, and nature according to their lights. (Spring—evening.)
- 237 *Chinese Law†* (3)
A short survey of the history of Chinese law and its social background; changes of Chinese law between the turn of the century and the end of the Manchu dynasty; legal concepts of the Chinese Republic from 1912 until the communist take-over in 1949. The philosophy and development of the communist legal system. (Spring—evening.)

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† Same as Law 474 (2). Graduate students registering for Political Science 237 make special arrangements with the instructor for supplementary assignments equivalent to one additional semester hour.

238 *Soviet Law** (3)

Ramundo

Concept of "socialist legality"; impact of Soviet legal system upon the individual in his relationship with the state and other participants in Soviet society; role of Communist Party in the institutional framework of the Soviet legal system; Soviet philosophy of law; state (constitutional) law including Soviet federalism, governmental apparatus, and rights and obligations of citizenship; criminal law, including economic crimes, role of social and public organizations in administration of justice, and concept of "administrative" punishment. (Fall—evening.)

253 *Seminar: Chinese Government and Politics* (3)

Michael

A discussion of the political institutions and concepts in late imperial times, during the period of the revolution, under the national government, and under the communists. The main emphasis of the seminar will be on the communist period. (Spring evening.)

256 *Seminar: the Politics of North Korea and North Vietnam†* (3) (JGW)

Han

An assessment of the positions of North Korea and North Vietnam between the Soviet Union and Communist China; history and issues of the Sino-Soviet dispute as related to the Asian satellites; the roles of Moscow and Peking in the creation of these two satellites; the techniques applied in the power take-over and the character of leadership. Internal and external developments of these two regimes will be related to issues involved in the Sino-Soviet dispute; factors and motives which impel Communist leaders in North Korea and North Vietnam to support one or the other of the two major Communist powers will be examined. (Spring—evening.)

264 *Seminar: Sino-Soviet Relations with South Asia‡* (3)

Boyd

A discussion of the conflict between Soviet and Chinese Communist aims in relation to India against the background of Soviet and Chinese diplomacy towards India's neighbors, especially Pakistan. (Spring—evening.)

269 *Seminar: Soviet Foreign Policy* (3)

Larson

The external policies and relations of the USSR; world objectives of the Soviet leaders; diplomacy in relations with other communist states, with the Western powers, and with other countries; international propaganda, disarmament policy, and foreign economic relations. (Fall—evening.)

270 *Seminar: the Soviet Foreign Policy Process* (3)

Metz

An investigation of the functioning of instruments used to implement Soviet foreign policy as they affect specific policy objectives and international political situations. The activities of the Soviet diplomatic apparatus, its negotiation techniques, its use of operandi in the economic, cultural, and trade fields. An investigation of areas of international communism, Soviet and communist fronts, and espionage, toward a better understanding of the wide range of Soviet mechanisms deployed abroad to serve foreign policy objectives. (Spring—evening.)

283 *Seminar: Soviet Military Policy and Strategy* (3)

Walt

Soviet developments in the area of military policy and strategy with some attention to questions of intra-Bloc military cooperation; political context within which Soviet military policy is formulated; significant changes in Soviet military doctrine. (Fall—evening.)

295 *Seminar: China in the Communist Bloc* (3)

Harris

An introduction to methods and bibliography; history of the Chinese Communist movement; ideology and political dynamics; economic and military policy; foreign policy and relations. (Spring—evening.)

* Same as Law 473 (2). Graduate students registering in Eastern Science 388 make special arrangements with the instructor for supplementary assignments to our syllabus.

† Offered jointly by The George Washington University and American University. Classes offered at GWU will be designated "JGW", courses offered at AU will be designated "JAU". GWU students register at this University.

‡ Appointment effective September 1964.

296 Seminar: the Communist Bloc in Far Eastern International Politics (3)

Hinton

The Communist strategy for Asia; Stalin's Far Eastern policy; growth of local Communist movements; impact of World War II; Soviet post-war policy in Asia; victory in China; the Korean and Indo-Chinese wars; armed struggle in South and Southeast Asia; wooing of the national bourgeoisie; development of the Asian communist states; local communist parties since World War II; Sino-Soviet rivalry. (Fall—evening.)

298 Seminar: Sino-Soviet Relations with Southeast Asia (3)

Boyd

A survey of the degree of compatibility and conflict between Soviet and Chinese Communist interests and objectives, as well as their diplomatic and revolutionary methods in Southeast Asia; the effects of coinciding and conflicting policies on Southeast Asian countries. (Fall—evening.)

PSYCHOLOGY

299 Seminar: Social Psychology of Communism (3)

White

Psychological aspects of authoritarian systems and of all embracing political ideologies; methods and findings in the study of public opinion in the USSR and its satellites; problems of Western communications with the USSR; the nature of Communist propaganda and the appeals of Communism in non-Communist countries. (Fall—evening.)

SLAVIC LANGUAGES AND LITERATURE

300 62 Russian Culture (3-3)

Olkhovsky

A survey of Russian cultural heritage from the origins of ancient Russia to the present. Lecture, recitation, discussion, and individual reports on assigned topics. This course may be taken for graduate credit with the approval of the instructor. (Academic year—evening; summer 1964.)

301 Soviet Literature (3)

Popluiko

A survey of major literary figures, literary movements, and literary styles. Revolution and its impact on writers. The theme of the Civil War in literature. The place of the Soviet intelligentsia in Soviet society, revival of the psychological novel, social realism, and government control of literature. This course may be taken for graduate credit with the approval of the instructor. (Fall—evening.)

International Affairs*

Professors J. W. Brewert, H. M. Merriman, R. D. Campbell†, R. H. Davison, W. H. Kross, W. C. Davis§, R. B. Thompson, Wilson Schmidt§, C. E. Galbreath, W. L. Taylor, K. L. London, J. L. B. Atkinson, H. M. Stout (Chairman (beginning June 1, 1964)), J. N. Mosel, W. C. Hopkins, Franz Michael (Visiting), George Taylor (Visiting), R. E. Purcell (Visiting)

Postdoctoral Lecturers R. L. Garthoff, H. C. Hinton, Lothar Metz, V. P. Petrov, T. W. Wolfe, R. K. White, J. J. Karch, Herbert Block, P. W. Han

Associate Professors Benjamin Nimer, J. T. Davis, H. R. Ludden§, R. S. Jordan

*The Staff of Instruction is for the academic year 1963-64.

†On sabbatical leave spring semester 1963-64.

‡On leave of absence spring semester 1963-64.

§On leave of absence 1963-64.

(Chairman (January 1-June 1, 1964)), George Stambuk, Joseph Aschheim, G. D. Overstreet (Research)

Associate Professorial Lecturer Warren Eitler

Assistant Professors P. F. Gallagher, P. P. Hill, J. K. McDonald, Michael Gasster

Lecturers Bernard Ramundo, Paul Gekker

Bachelor of Arts in Government or Master of Arts in Government in the field of International Affairs.—See pages 159-62, 168-71, 172.

Master of Arts in International Affairs or Master of Science in International Affairs (War College Programs).—See the College of General Studies Catalogue.

The International Affairs programs are interdisciplinary in concept and interdepartmental in structure. Programs being developed are: **Comparative Institutions and Cultures**, Political and Economic Development, International Politics, Law and Organization, National Security, Sino-Soviet Studies. The courses listed below are an indication of the range of elective courses available. For course descriptions see the departmental announcements concerned.

GENERAL

- Anthropology 161, *Language and Culture* (3)
- Anthropology 263, *Culture Contact and Change* (3)
- Economics 181-82, *International Economics* (3-3)
- Economics 246, *Foreign Labor Movements* (3)
- Economics 281-82, *International Economics* (3-3)
- Economics 284, *United States Foreign Economic Policy* (3)
- Economics 290, *Seminar: International Economics* (3)
- Geography 52, *World Regions* (3)
- Geography 126, *World Economies* (3)
- Geography 127, *World Population and Settlement* (3)
- Geography 143, *Elements of Political Geography* (3)
- Geography 145, *Psychological Geography* (3)
- Geography 146, *World Political Geography* (3)
- Geography 241-42, *Seminar: Place and Culture* (3-3)
- Geography 253-54, *Seminar: Problems of Developing Nations* (3)
- History 181-82, *Diplomatic History of the United States* (3-3)
- History 183, *Overseas Expansion of the United States* (3)
- History 184, *Canada and the United States* (3)
- History 281-82, *Seminar: Diplomatic History of the United States* (3-3)
- History 285-86, *Reading Course in American Diplomatic History* (3)
- * International Affairs 260, *Fundamentals of National Power* (3)
- * International Affairs 261, *International and United States Foreign Policy* (3)
- * International Affairs 262, *National Security Policy of the United States* (3)
- * International Affairs 297, *Readings in International Affairs* (1 to 2)
- * International Affairs 299-300, *Thesis* (3-3)

* Offered in off-campus War College programs only.

- Political Science 111, *Introduction to Comparative Government and Politics* (3)
- Political Science 112, *Introduction to Comparative Government and Politics* (3)
- Political Science 117-18, *Political Theory: the Nature and Growth of Political Thought in the West* (3-3)
- Political Science 171, *International Politics* (3)
- Political Science 172, *Organization and Function of the United Nations* (3)
- Political Science 181-82, *Survey of Public International Law and Organization* (3-3)
- Political Science 187-88, *Current Problems in International Politics* (1-1)
- Political Science 197, *Proseminar in International Affairs: Strategies of Contemporary American Foreign Policy* (3)
- Political Science 211, *Readings in Comparative Government and Politics* (3)
- Political Science 212, *Seminar: Comparative Government and Politics* (3)
- Political Science 217, *Seminar: Topics in Political Theory* (3)
- Political Science 218, *Reading Course in Political Theory* (3)
- Political Science 271-72, *Problems in International Organization* (3-3)
- Political Science 273, *Public Opinion and Foreign Policy* (3)
- Political Science 275-76, *Problems in International Politics* (3-3)
- Political Science 281-82, *Seminar: Public International Law* (3-3)
- Political Science 283, *Topics in International Law* (3)
- Political Science 285, *Diplomacy Since World War II* (3)
- Psychology 156, *Psychology of Propaganda and Public Opinion* (3)
- Psychology 262, *Behavioral Factors in Social Change* (3)
- Sociology 144, *Mass Communications* (3)
- Sociology 226, *Problems of Underdeveloped Areas* (3)
- Sociology 241, *Population Problems* (3)

AFRICA

- Geography 155, *Africa* (3)
- Political Science 192, *Governments and Politics of North Africa* (3)

FAR EAST

- Geography 165, *Eastern and Southeastern Asia* (3)
- History 187, *History of Modern China* (3)
- History 190, *History of India* (3)
- History 195-96, *History of East Asia* (3-3)
- Political Science 194, *Governments of China and Japan* (3)
- Political Science 203, *Seminar: Governments and Politics of South and Southeast Asia* (3)

* Offered in off-campus War College programs only

LATIN AMERICA

- Economics 185-86, *Economic History and Problems of Latin America* (3-3)
 Economics 285-86, *Economic Development of Latin America* (3-3)
 Economics 287-88, *Latin America: Trade and Commodity Policy* (3-3)
 Geography 161, *Latin America* (3)
 History 163, *Colonial Latin America* (3)
 History 164, *South America since Independence* (3)
 History 166, *Mexico and the Caribbean since Independence* (3)
 History 261-62, *Seminar: Latin American History* (3-3)
 Political Science 177, *Recent Trends in Latin American Politics and Government* (3)
 Political Science 277, *Seminar: Latin American Government* (3)
 Political Science 278, *Seminar: Latin American Political Philosophy* (3)

MIDDLE EAST

- Geography 156, *The Middle East* (3)
 History 193, *History of the Near East* (3)
 History 294, *Seminar: the History of the Modern Near East* (3)
 Political Science 191, *Governments and Politics of the Middle East* (3)
 Political Science 292, *Governments and Politics of North Africa* (3)

SINO-SOVIET

- Economics 267, *The Soviet Economy* (3)
 Education 281, *Seminar: the Educational System of the Soviet Union* (3)
 Education 282, *Seminar: the Educational System of Communist China* (3)
 Geography 265, *Seminar: Geography of the Soviet Union* (3)
 Geography 266, *Seminar: Geography of China** (3) (JGW)
 History 245, *Seminar: Eurasian History* (3)
 History 248, *Reading Course in Russian History* (3)
 History 295-96, *Seminar: History of the Modern Far East I-II* (3-3)
 Political Science 215-16, *Seminar: the Sino-Soviet Blocs in World Affairs I-II* (3-3)
 Political Science 224, *Readings in Socialism and Communism* (3)
 Political Science 225, *Seminar: Theoretical Problems of Marxism-Leninism* (3)
 Political Science 227, *Seminar: the Politics of Eastern Europe* (3)

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- Political Science 230, *Seminar: Operational Techniques of International Communism* (3)
- Political Science 231, *Seminar: the Sino-Soviet Conflict** (3) (JGW)
- Political Science 232, *Seminar: International Communication - the Sino-Soviet Orbit* (3)
- Political Science 233, *Seminar: Soviet Government and Politics* (3)
- Political Science 234, *Seminar: Soviet Internal Policy* (3)
- Political Science 237, *Chinese Law†* (3)
- Political Science 238, *Soviet Law‡* (3)
- Political Science 253, *Seminar: Chinese Government and Politics* (3)
- Political Science 256, *Seminar: the Politics of North Korea and North Vietnam** (3) (JGW)
- Political Science 264, *Seminar: Sino-Soviet Relations with South Asia* (3)
- Political Science 269, *Seminar: Soviet Foreign Policy* (3)
- Political Science 270, *Seminar: the Soviet Foreign Policy Process* (3)
- Political Science 288, *Seminar: Soviet Military Policy and Strategy* (2)
- Political Science 295, *Seminar: China in the Communist Bloc* (3)
- Political Science 296, *Seminar: the Communist Bloc in Far Eastern International Politics* (3)
- Political Science 298, *Seminar: Sino-Soviet Relations with Southeast Asia* (3)
- Psychology 259, *Seminar: Social Psychology of Communism* (3)
- Slavic Languages and Literatures 161-62, *Russian Culture* (3-3)
- Slavic Languages and Literatures 165, *Soviet Literature* (3)

WESTERN EUROPE

- Geography 153, *Western Europe* (3)
- Geography 154, *The Mediterranean* (3)
- History 141-42, *History of France* (3-3)
- History 149-50, *European Diplomatic History* (3-3)
- History 241-42, *Seminar: Modern European History* (3-3)
- History 249, *Seminar: European Diplomatic History* (3)
- Political Science 113, *Political Problems of the British Commonwealth of Nations* (3)
- Political Science 178, *International Politics in the Western Hemisphere* (3)

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† Same as Law 474 (2). Graduate students registering for Political Science 237 make special arrangements with the instructor for supplementary assignments equivalent to one additional semester hour.

‡ Same as Law 473 (2). Graduate students registering for Political Science 238 make special arrangements with the instructor for supplementary assignments equivalent to one additional semester hour.

Italian

See "Romance Languages and Literatures".

Journalism^{*}

Professor R. P. Schlachach, Jr. (Chairman)

Associate Professor R. C. Willson

Lecturers F. L. Dennis, J. V. Hinkel, Louis Robinson, T. R. Smith

Bachelor of Arts with a major in Journalism (Departmental).—Prerequisite: the Arts and Letters curriculum, page 10, including English 51-52 or 71-72, History 71-72, Political Science 9-10, and Journalism 71-72.

Required:

- (1) The general requirements, pages 76-78.
 - (2) Twenty-four hours of second-group courses in Journalism, as follows: (a) Journalism 111, 196, 198; (b) nine hours chosen from Journalism 121, 133, 137, 144, 151; (c) six hours chosen from Journalism 145, 140, 142, 143, 145.
 - (3) Twelve hours of second-group courses, chosen in consultation with the major adviser, in one other department of Columbian College of Arts and Sciences. Students selecting science may take courses in more than one department.
- American Thought and Civilization 101 American Civilization is recommended as a senior-year elective for Journalism majors.

FIRST GROUP

71-72 *Journalism in American Society* (3-3)

Evolution of newspapers and other media in relation to political, social, and economic life; the concept of press freedom; problems of contemporary journalism—with special emphasis on press-government relations. (Academic year—day and evening.)

Willson

SECOND GROUP

111 *Reporting* (3)

Instruction and classroom practice in gathering, evaluating, and writing news; emphasis on newspapers, other media considered. (Fall—day; spring—evening.)

Schlachach

115 *Editing and Make-up* (3)

Editing of news and other material for publication, typography and display; use of pictures and other graphic presentations. (Fall—day.)

Schlachach

121 *Advanced Reporting: Magazine Feature Articles* (3)

Instruction and practice in writing magazine articles, material for which is obtained through independent investigation. (Spring—day.)

Willson

^{*} The Staff of Instruction is for the academic year 1963-64

- 133 *Advanced Reporting: Community News* (3) Schlachach
Instruction and practice in coverage and writing of local news. (Spring—day.)
- 137 *Advanced Reporting: National Affairs* (3) Schlachach
Instruction and practice in coverage and writing of federal government news from the point of view of the press association. (Not offered 1964-65.)
- 140 *Photojournalism* (3) Smith
Photographic techniques affecting publication, the illustration and the story angle, standards of judgment in selection and use of pictures, captions, editing technique, cropping for effective reproduction. (Spring—evening.)
- 142 *Retail Newspaper Advertising* (3) Robinson
Retail newspaper advertising management, coordination of newspaper advertising with retail sales patterns, advertising readership, copy preparation, production methods. (Spring—evening.)
- 143 *Industrial Communications* (3) Willson
An introduction to the field of corporate journalism. Writing and editing the employee magazine. Preparation of annual reports. Editing stockholder publications and external house organs. (Not offered 1964-65.)
- 144 *Advanced Reporting: the Arts and Sciences* (3) Willson
Instruction and practice in writing articles for publication in such fields as the arts, business and economics, science, and technology. (Fall—evening.)
- 145 *Principles and Problems of Public Relations* (3) Hunkel
Principles, problems, and ethics of public relations for government agencies, commercial establishments, educational and other public institutions. Case histories of successful programs. (Fall—Saturday morning.)
- 151 *Editorial Writing* (3) Schlachach
Instruction and practice in writing of editorials on public affairs. (Fall—day.)
- 196 *Seminar* (3) Schlachach
For journalism majors only. Research in areas relating journalism to secondary fields of study. (Spring—as arranged.)
- 198 *Law of the Press* (3) Dennis
Freedom of the press, censorship, legislative controls, publications as contempt of court, copyright, news gathering agencies, labor law and the newspaper business, law of libel, privileged matter, fair comment on public characters, right of privacy. (Fall—Saturday morning.)

Latin

See "Classical Languages and Literatures".

Law*

Professors W. T. Fryer, C. D. Benson (*Emeritus*), J. F. Davison, O. S. Colclough, L. S. Merrifield†, O. H. Walburn, D. B. Weaver, L. H. Mayo, G. E. Weston†, R. M. Cooper†, W. T. Mallison, Jr., C. B. Nutting, R. G. Dixon, Jr., Robert Kramer (*Chairman*), A. S. Miller, J. R. Hambrick‡, W. W. Kirkpatrick, Max Isenbergh (*Visiting*)

Adjunct Professor J. W. Jackson

Professorial Lecturers J. A. McIntire, J. L. Edgerton, P. F. Herrick, G. E. Monk, C. J. Zinn, L. J. Harris, L. P. Walsh, E. A. Beard, Mundock Head, G. N. Robillard, C. L. Hart, Jr., Lester Nurick, W. S. Surrey, M. F. Cohen, G. J. Goldborough, P. A. Rose, Joel Barlow, Fleming Bomar, H. B. Cox, W. W. Duman, D. V. Harris, Jr., Herbert Magill, J. T. Sapienza

Associate Professors G. A. Ledakis, M. H. Freedman, R. C. Nash, Jr., D. C. Green, S. C. Law, H. G. Manne, D. E. Seidelson, D. J. Sharpe, J. P. Sullivan, E. A. Potts, R. C. Allen

Associate Professorial Lecturers H. J. Liebesny, T. H. Brown, S. S. Cohen, H. P. Green, G. D. Cary, I. H. Rimel, P. J. Federico, J. W. Malley

Assistant Professors L. A. Schiller, John Cihinic, Jr., T. A. Clingan, Jr. (*Visiting*)

Lecturers W. W. Goodrich, A. H. Kaplan, Raymond Kellam, Alfred Letzler, Bernard Ramundo, S. V. Coekjian, V. A. Kleinfeld, C. G. Love, Milton Mitchell, G. W. Shelhorse, L. S. Wallerstein, Elcye Zenoff

Clerk of the Trial Practice Court J. A. Kendrick

Associate Clerk of the Trial Practice Court D. G. Skinner

Librarian of the Law Library H. Y. Bernard

For the requirements for the degrees of *Bachelor of Laws*, *Master of Laws*, *Master of Comparative Law*, *Master of Comparative Law (American Practice)*, and *Doctor of Juridical Science*, see pages 112-14, 117, 117-18.

FIRST YEAR

110 Constitutional Law (4)

Basic principles of American constitutionalism; judicial function in constitutional cases; implementation of doctrines of separation of powers, federalism, limited government; development and exercise of national powers; introduction to civil rights and liberties. (Spring—day and evening.) Mayo, Dixon, Miller

115-16 Contracts I-II (2-4)

Legal relations of contracting parties, including damages in contract and quasi-contract, specific performance, reformation, rescission, and remedies in tort; acts creating and terminating contractual rights, including offer and acceptance, mistake, and fraud; burden of proof, the function of consideration; conditions; assignments; third-party beneficiaries; the effect of changed circumstances; and protection of the clause in contracts upon breach or threat of breach by the other party. Emphasis on problems of analysis, draftsman's method, and adversary method. (Academic year—day and evening; summer 1964.) Miller, Freedman, Cihinic

* The Staff of Instruction is for the academic year 1963-64.

† On leave of absence 1963-64.

‡ On sabbatical leave fall semester 1963-64.

25 *Criminal Law and Procedure* (4)

Sullivan, D. Green

Origin and purposes of criminal law; elements of criminal liability; mental disorders; crimes against the person, against property, and against both; statutory offenses; criminal procedure, with consideration of Federal Rules of Criminal Procedure. (Fall—day; spring—evening.)

26 *Legal Method and Legal System* (3)

Fryer, Benson, Davison

Introduction to substantive and procedural law dealing with basic concepts; training in method and technique of case law and legislation using modern case records; practice in use of law books and in legal writing; importance of language in law; legal reasoning and use of precedents under doctrine of stare decisis, law of the case, and res judicata; development of Anglo-American legal system; organization of judiciary and bar, stressing enforcement of ethical standards. (Fall and spring—day and evening.)

27 *Personal Property* (2)

Fryer, Nash, Clingan

Concepts, meanings of term "possession", methods of acquiring ownership, problems in bailment cases, basic principles of liens and pledges. (Fall and spring—day and evening.)

28 *Real Property* (4)

Benson, Walburn, Sullivan, Schiller

Historical background of the law of estates and conveyancing; types of estates; dower and curtesy; landlord and tenant relationship; concurrent estates; future interests at common law and after the Statute of Uses; the Rule Against Perpetuities; incidents of divided ownership, as waste; natural rights. (Fall—evening; spring—day; summer 1964.)

29 *Torts I-II* (3-2)

Merrifield, Seidelson, Sharpe, Isenbergh

Liability for harm to person or property. Intentional torts, negligence, nuisance, products liability, misrepresentation, defamation, and invasion of privacy; fault and other bases for shifting losses; causation; damages; effects of liability insurance; problems under the Federal Tort Claims Act. (Academic year—day and evening.)

SECOND YEAR

30 *Administrative Law* (3)

Davison

The position of the administrative process in the separation of powers, including the status of administrative personnel, administrative hearings, judicial scrutiny of administrative action, discretion, and rule-making—particularly as relating to federal administrative agencies. (Spring—day and evening; summer 1964.)

31 *Appellate Practice and Procedure* (2)

The preparation of a brief and pleadings in an actual case in the Supreme Court of the United States or in the United States Court of Appeals for the District of Columbia Circuit. Each student writes an analysis of a case currently being litigated in the Supreme Court of the United States. Guest lecturers include judges and attorneys currently trying cases on appeal. Open to day and evening students, by permission of the instructor. (Not offered 1964-65.)

32 *Business Associations I* (2)

Mann

Legal principles concerning association in business by agency, partnership, other unincorporated forms, and corporations; creation, form and nature of agency, partnership and corporation; basic principles of agency and partnership and introductory related principles of corporation law. (Fall—day and evening; summer 1964.)

33 *Business Associations II* (4)

Kirkpatrick, Mann

Corporate law, with emphasis on operations and financing of the corporation. Control of the corporation, action by corporate directors, officers, and shareholders. Control of the corporation. Directors' and shareholders' duties of care and loyalty, and insiders' transactions in shares of the corporation. Derivative suits, kinds of shares, dividends, and corporate distributions. (Fall—evening; spring—day and evening.)

215 Civil Procedure (4)

Walburn, D. Green

The mechanics of litigation—the rules which govern the process by which the rights and duties studied in substantive law courses are enforced: pleadings, discovery, pre- and post-trial motions, jurisdiction and venue, equity jurisdiction and trial by jury, former adjudication. Emphasis is on the Federal Rules of Civil Procedure but the principles and main problems indigenous to all procedural systems are developed. (Fall—day and evening; summer 1964.)

219 Commercial and Investment Paper (3)

Ledak

Bills of exchange, promissory notes, checks, bonds, certificates of stock, and other forms of commercial and investment paper in the context of their business function and legal setting under the common law and uniform laws, including the proposed Uniform Commercial Code. (Spring—day and evening; summer 1964.)

224 Sales and Sales Financing (3)

Ledak

The law relating to the sale and distribution of goods and to the security financing devices utilized in this connection, with particular attention to the effect of existing and proposed uniform laws. (Fall—day and evening.)

235 Domestic Relations (2)

Potts, Seidelson

Marriage, annulment, and divorce; adoption and custody of children; economic relations. (Fall—evening; spring—day and evening; summer 1964.)

238 Equity (2)

Sullivan, Hogan

Nature of equity jurisprudence through analysis of selected problems in equity; historical development of equity, including problems of merger of law and equity; use of equity jurisdiction offensively and defensively, including multi-party actions, injunction of executive and legal actions, and equitable abstention; emphasis on the fashioning of equitable remedies. (Spring—day and evening; summer 1964.)

240 Evidence (4)

Fryer, Sullivan

Preparation and presentation of evidence, including proof of writings; qualification and examination of witnesses with emphasis on impeachment; privilege; opinion testimony; determination of relevancy; demonstrative, experimental, and scientific evidence; application of the hearsay rule. (Spring—day and evening; summer 1964.)

243 Federal Jurisdiction (2)

Freedman

Constitutional and statutory origins of federal courts, cases arising under the laws and the Constitution, diversity of citizenship, jurisdictional amount, removal procedure and jurisdiction, limitations on federal jurisdiction, state and federal conflicts, substantive law applied by federal courts. (Fall—evening; spring—day; summer 1964.)

251 Insurance (2)

Schiller

A primary risk distributing medium and the rules by which legislative, administrative, and judicial bodies seek to promote its benefits and avert its dangers. Includes insurance as a marketing, insurable interest, subrogation, transfer of insurance benefits to non-policyholders, coverage and other insurance policy provisions, disposition of claims. (Fall—day and evening; summer 1964.)

254 International Law and World Order (3)

Mallison

Traditional content of course in international law presented in context of values and institutions of the world community; formal prescription and effective practice concerning participants in decision-making processes; roles of individuals, international public organizations, political parties, pressure groups, private associations, and national states; analysis of range of available sanctions; the roles and effects of international agreements under the United States Constitution. (Fall—day and evening; summer 1964.)

259 Labor Law (3)

Merrifield, Schiller

Law governing labor-management relations, organization and representation of employees, regulation of economic weapons, enforcement of collective bargaining agreements, interunion and intraunion relations. (Spring—day and evening.)

- 265 *Law and Accounting* (2) S. Cohen
Study of fundamental accounting principles with emphasis on corporation accounting; legal and accounting implications of specific items on financial statements of corporations; inventory adjustments; corporate transactions, distributions, and capital adjustments. (Spring—evening.)
- 270 *Legislation* (2) Nutting, Mallison
The legislative process and roles of various participants in the process; operation of the United States Congress and state legislatures, including fact finding, organization, and procedure; problems of statutory interpretation. (Spring—day and evening; summer 1964.)
- 274 *Taxation—Federal Estate and Gift* (2) Kramer, Hambrick
A survey of the substantive provisions of the federal estate and gift tax laws, including inter vivos transfers, transfers in contemplation of death, joint interests, life insurance proceeds, property subject to powers of appointment, the marital deduction and split gifts; tax procedure. (Fall—evening; spring—day.)
- 279 *Taxation—Federal Income* (3) Hambrick, Weaver
Survey of substantive provisions of federal income tax, including concept of gross income, provisions affecting taxation of the family and individual transactions, limitations on allowable deductions, sales and dispositions of property, problems of capital gains taxation, and nontaxable exchanges. (Fall—day and evening; summer 1964.)
- 285, 286 *Trusts and Estates I- II* (3-3) Weaver, Law
Study of noncommercial transfers of wealth at death or during life. *First half:* essential elements and formalities for creation of trusts and execution of wills, revocation and alteration, grounds for contest, limits on property owner's power to control, intestate succession. *Second half:* dispositive provisions, common questions of construction, future interests problems, administration of estates and trusts, charitable trusts. Prerequisite to Law 285; Law 150; to Law 286: Law 285. (Academic year—day and evening; summer 1964.)
- 295 *Unfair Trade Practices* (3) Weston, Law
Unfair trade practices at common law and under statutes; trademarks, trade names; copyright law; misappropriation of ideas; protection of competitors and consumers against false advertising under Federal Trade Commission Act; resale price maintenance under state Fair Trade Acts; state sales below cost statutes; Robinson-Patman Act; Discrimination Act; miscellaneous business practices. (Fall—day and evening.)

THIRD YEAR

- 312 *Admiralty* (2) Sharpe
Doctrines originating in admiralty courts—prize, maritime liens, salvage, general average, negligence in ship collisions and others; maintenance and cure, unseaworthiness; maritime law from legislative origins—personal injury and death remedies, limits on shipowners' liability, regulation of carriage of goods and persons; admiralty jurisdiction and maritime law in the federal system. (Spring—evening.)
- 317 *Comparative Law* (3) Davison
The Civil Law System; general introduction to foreign law as exemplified by Roman Law and the French and German Civil Codes; comparative study of administration of justice and legal institutions. This course deals with delictual and contractual obligations. (Fall—evening.)
- 369 *Conflict of Laws* (3) Dixon, Seidelson
Legal problems arising from occurrences transcending state or national boundaries, jurisdiction; foreign judgments; constitutional influences; theoretical bases of choice of law principles and their application to specific fields, including torts, contracts, property, family law, administration of estates, and business associations. (Fall—day and evening; summer 1964.)

311 *Copyright Law* (2)

Historical background; formalities and essentials in securing a copyright; subject matter of copyright; remedies; international aspects of copyright under Berne Union, Universal Copyright Convention, and Inter-American Convention; copyright licensing and performing right societies. (Spring—evening.) Cary

318 *Creditors' Rights* (3)

Creditors' remedies outside bankruptcy—compositions, agreements, and general assignments; bankruptcy proceedings under the federal statute, administration, discharge, the position and powers of the trustee, preferences; corporate reorganization under Chapter X of the Bankruptcy Act. (Fall—day and evening; summer 1964.) Kirkpatrick

321-22 *Current Decisions* (2-2)

Required of, and limited to, members of the student staff of the *Law Review*. (RP) Seidelson

330 *Federal Antitrust Laws* (3)

Study of the Sherman and Clayton Acts, and related statutes. Price fixing agreements and other types of trade restraints considered under Section 1, and monopolizing considered under Section 2 of the Sherman Act. Mergers and tie-in sales, and other activities under the Clayton Act. Generally, all types of business conduct raising questions under the antitrust laws, including trade association activities, exclusive dealing arrangements, boycotts, and patents and copyrights. (Spring—day and evening; summer 1964.) Weston, Kirkpatrick, Isenberg

335 *Jurisprudence* (2)

Basic jurisprudential concepts; the nature of law; development of legal institutions; jurisprudential schools—natural law, analytical, historical, sociological, and functional; law and logic; law and justice; the judicial process; legislative, executive, and administrative decision-making; the impact of politics, economics, and scientific advance on legal systems; contemporary trends in jurisprudential thought. (Fall—evening; spring—day.) Mayo, Kramer

339 *Collective Bargaining and Labor Arbitration* (2)

The collective labor agreement; its content, negotiation, and administration through the grievance procedure and arbitration; problems in the settlement of labor disputes. (Fall—evening.) Merrifield

341 *Labor Standards and Social Security Legislation* (2)

Legal problems arising under federal and state statutes dealing with labor standards and social security. Particular emphasis is placed upon the regulation of wages and hours, workmen's compensation, and insurance against unemployment and old age. (Not offered 1964-65.) Merrifield

344 *Legal Writing* (1)

Preparation of a paper on a suitable topic approved by a full-time member of the faculty, who will supervise the necessary research and preparation. Approval of the Dean is required prior to registration. (Fall and spring—as arranged; summer 1964.) The Staff

345 *Legislative Drafting* (2)

Advanced instruction and practice in legislative drafting. (RP) Zinn

349 *Local Government Law* (2)

The decision-making processes in metropolitan and local communities; types and powers of city, county, and special function local government units; intergovernmental relations; original organization and changes; local lawmaking; community planning and development; responsibility in tort. (Spring—evening.) Malabar

350 *Patent Law* (2)

Origin and nature of patents, patentable subject matter, classes of patents, novelty, invention, patent claims and their interpretation, acts constituting infringement, correction of patents. (Fall—evening.) Robb

362 *Patent Office Practice* (2)

United States Patent Office rules and practice, appeal and review procedure. (Fall—evening.) Robb

63 *Patent Interference Practice* (1)

Magill

Steps preparatory to instituting an interference, interpreting interference counts, preparation of preliminary statements, prosecution of motions, submission of evidence, final hearing practice, appellate procedure, settlements. (Fall—evening.)

64 *Patent Trial Practice Court* (2)

Brown, Rimel

Practice before the United States Court of Customs and Patent Appeals and the federal courts. Prerequisite: forty-two semester hours, including Law 215 and 240. Law 359, which is also required, may be taken concurrently. The Trial Practice Court requirement may be satisfied by this course or Law 385. If *Patent Trial Practice Court* is started in the spring semester, Law 240 may be taken concurrently. (Fall and spring—day and evening.)

65 *Patent Licensing and International and Comparative Patent Law* (2)

Malley, Love,

Federico

Survey of the principal national patent systems with study of their resemblances and differences. Treaties relating to patents. The International Convention for the Protection of Industrial Property (patent and trademark treaty between 51 countries); history, analysis, application, administration. Current movements toward harmonization and utilization of patent laws. Patents in the Common Market countries—plans for multinational patents. Fundamentals of Exclusive and Non-Exclusive Patent License Contracts. What can be licensed and how. Problems of royalty calculations; licensing of improvements; grant-back clauses; termination, hold harmless, most favored nation, patent enforcement and arbitration provisions; comparison of the licensor's and licensee's approach to the drafting and negotiation of a patent license. (Spring—evening.)

66 *Restitution* (2)

Sharpe

Quasi-contracts, constructive trusts, rescission, and other legal and equitable remedies for restoring property and money which unjustly enriches others at the expense of volunteers, victims of misappropriation, and parties to mistaken contracts. (Spring—evening; summer 1964.)

67 *Security Transactions* (3)

D. Green

Suretyship and mortgages; security interests in real and personal property, their creation, transfer, enforcement, and extinguishment; the law of suretyship, especially in the context of accommodation credit and commercial and financial practices. (Spring—day and evening.)

68 *Selected Problems in the Trial of Tort Cases* (2)

Goldshorrough

For senior and graduate students and young lawyers without experience in the trial of a negligence case. Recent developments in the principal areas of negligence law; an examination of the fundamental concepts of damages and the principal aspects of setting a negligence case, the preparation and trial of a negligence case; the contemporary liability insurance policy and its impact upon tort litigation; the literature of tort law. (Fall—evening.)

69 *Trial Practice Court* (2)

Jackson, Edgerton, Herrick, Monk,

Walsh, Beard, Hart, Kendrick, Skinner

Trial of assigned cases, trial tactics and techniques, pretrial and court room presentation pursuant to Federal Rules. To be taken in the senior year. Prerequisite: forty-two semester hours, including Law 215 and 240. The Trial Practice Court requirement may be satisfied by this course or Law 365. If *Trial Practice Court* is started in the spring semester, Law 240 may be taken concurrently. (Fall and spring—day and evening.)

70 *United Nations Constitutional Law* (1)

Mallison

An introduction to international law through study of legal problems of the United Nations. Interpretation of the law of the Charter, etc. (Spring—evening.)

GRADUATE COURSES

- 401 *Seminar: Administrative Law* (2) Davison
Group study of specific problems in administrative law. (RP) (Spring—evening)
- 403 *Seminar: Constitutional Law* (2) Dixon
Group study of contemporary problems in constitutional law. (RP) (Not offered 1964-65.)
- 412 *Use and Control of Atomic Energy and Space Technology* (2) H. Green
Problems resulting from the revolutionary scientific developments of recent years, as exemplified particularly by atomic energy and space activities. The impact of these advanced technologies on the law and the legal institutions established to assure their adequate control in the public interest. Laws relating to atomic energy and space. Provisions of the Atomic Energy Act and the regulations of the Atomic Energy Commission governing civilian uses of atomic energy. Patent, security, and international considerations. (RP) (Spring—evening)
- 413 *The Modern Corporation* (2) Maune
An attempt to apply the principles of political economy to the modern, large corporation. Examination and analysis of such phenomena as the separation of ownership and control, fights for control, shareholder voting, impact of capital markets and corporate activity, relation of antitrust laws to corporate control, and the relevance of specific aspects of S.E.C. and general corporation laws to the large corporation. (Not offered 1964-65.)
- 415 *Administration of Criminal Justice* (2) Allen, Nuttall
Selected problems in the field such as arrest, police interrogation, electronic interception, discovery, and the relative positions of prosecution and defense in preparing cases. The professional responsibility of lawyers will be emphasized. (Spring—evening)
- 420 *Seminar: Estate Planning* (2) Weaver
Group study of the effective disposition of wealth, inter vivos and testamentary gifts, conservation for owner's future use, use of insurance, tax and administrative problems, business interests, pension and profit-sharing arrangements. (RP) (Spring—evening)
- 421 *European Common Market* (2) Isenbergh
Analysis of the treaty establishing the European Economic Community and study of selected aspects of the Community's development and functioning, such as substantive features of the customs union and free trade area established; antitrust and tax provisions; legislative, executive, and judicial powers of the Community; its institutions; approximation of national laws and relationship between national and Community law; development of common economic policies; rights of establishment and free business within the Community; and the Community's relations with Members, non-Members, and associated countries as well as with international organizations. (Fall—evening)
- 424 *Seminar on Evidence and Trial Practice* (2) Fryer
Consideration of selected problems involving presentation of proof under the most controversial rules of evidence. Emphasis will be placed on important rules and the truths from the standpoint of the need for a fundamental reexamination of the law, especially as proposed by the Uniform Rules of Evidence. (RP) (Not offered 1964-65.)
- 425 *The Executive Function* (2) Mayo, Miller
The Executive branch in constitutional theory; major trends in the development of the Executive Administrative function; the organization of the Executive branch; relationship of the Executive to the Congress and the Judiciary; policy making processes within various segments of the Executive branch including the role of the President, the Budget in national policy planning; the President as opinion leader; case studies in the exercise of Executive power in such functional areas as national defense, foreign relations, the national economy, and foreign economic relations; and the role of law and of lawyers in the Executive decisional and implemental process. (Fall—evening)

126 *Forensic Medicine* (2)

Head, Sharpe

Sufficient orientation for law students in the medical environment (scientific method, medical education and specialties, and hospitals) to enable discussion of current problems arising in areas where law and medicine interact: medical ethics and practice and organizations, professional liability, and the use of medical facts as legal proof and as positive law. (Fall—day and evening.)

128 *Food and Drug Law* (2)

Goodrich, Kleinfeld, Kaplan

A lecture and discussion course dealing with the Federal Food, Drug, and Cosmetic Act and governmental controls thereunder. Both government and industry viewpoints are considered. (Spring—evening.)

131 *Government Contracts I* (2)

McIntire

A survey of the basic law underlying government procurement, the basic power and limitations on the Federal Government in entering into contracts, administrative and legislative policies governing these contracts, advertised and negotiated procurement procedures, forms of contracts and clauses used. (Fall—day and evening.)

132 *Government Contracts II* (2)

McIntire, Nash, Cibiric

Special problems which arise under government contracts, contract modifications and equitable adjustments during performance of contracts, subcontracting and priority of contract problems, patents and technical data clauses and procedures. (Spring—evening.)

133 *Government Contract Claims Procedures* (2)

Nash

Analysis of the jurisdiction and procedures of the various agencies, boards, and courts which grant relief under government contracts—including the General Accounting Office, the Boards of Contract Appeals, the Contract Adjustment Boards, the Court of Claims, and other courts; the intent and scope of the disputes procedure; the authority of the contracting officer to settle claims against the Government; the time and cost required to obtain relief. (Fall—evening.)

134 *Government Contract Cost Determination* (2)

Cibiric

An examination of the rules of cost allowance and disallowance in government contracts; particular emphasis on the concepts of reasonableness and allocability; special problems in the application of cost rules to fixed price situations; consideration of particularly difficult cost questions such as advertising, bidding expense, and research and development costs; discussion of cost problems relating to capital investment policies including rent, depreciation, and interest; comparison of contract cost principles to Federal Income Tax and Renegotiation cost rules. (Spring—evening.)

135 *Seminar: Selected Problems in Government Contracts* (2)

Nash, Cibiric

Research and discussion on selected problem areas. In the summer of 1964 this seminar will deal with terms and conditions used in subcontracts under government contracts. (Summer 1964.)

136 *Seminar: International Regional Organizations* (2)

Miller

Legal and policy questions involved in American participation in multinational organizations, including General Agreement on Tariff and Trade, Organization for Economic Cooperation and Development, North Atlantic Treaty Organization, and Organization of American States. Concepts of sovereignty and nationalism will be studied. Special attention will be accorded the nascent "Atlantic Community." (RP) (Not offered 1964-65.)

137 *Diplomatic and Consular Law and Practice* (1)

Mitchell

The history and development of diplomatic relations between nations; codification of the laws of diplomacy; rights and duties of diplomatic agents; extent of diplomatic immunity from judicial process (civil and criminal) of members of diplomatic missions; exemption from taxation of diplomatic agents and property used for diplomatic purposes; inviolability of diplomatic premises, communications, and archives. History and development of consulates; contrast between extent of rights, privileges, exemptions, and immunities of diplomatic and consular personnel; codification of consular law and practice; the nature of consular immunity, civil and criminal; duties

and functions of members of the consular post; inviolability of consular premises, communications, and archives; present status and extent of consular treaties and agreements. (Fall—evening.)

433 *Seminar: International Commercial Transactions* (2)

Role of the lawyer and regulation of his practice, survey of problems of the foreign client doing business with the United States or its nationals, developments in foreign trade and investment among industrialized countries, special treatment of the role of private enterprise and government agency operations in developing nations. (Spring—day.)

Ledaki

440 *Legal Aspects of International Business Transactions* (2)

United States law and practice, including current antitrust and tax problems; brief comparison with the British and Civil Law systems; international law, foreign contracts, choice of law; currency considerations; effect of S.E.C. laws and regulations; international trade, including GATT and reciprocal trade arrangements; sources of finance, both United States and foreign, private and public, including international organizations; and selected case studies. In addition to the regular lecturers, there will be guest lecturers in their specialties. Prerequisite: Law 254. (Spring—evening.)

Nurick, Guekjian

442 *Seminar: Labor Law* (2)

Group study of contemporary problems in labor law. (RP) (Fall—evening.)

443 *Labor Relations in the Federal Service* (2)

Joint seminar—law and economics—devoted to a study of labor relations in the federal service. Particular attention is given to current problems arising out of the President's Task Force Report and the Executive Order of January 17, 1961, creating a new system of collective relationships between employee organizations and the federal government. (Fall—evening.)

Merrifield, Holland, Wall-stern

449 *Law of the Near East* (2)

A study of the law of the Arab countries, including the basic principles of the Islamic law, an analysis of the present day codes, and an investigation of the Western influence on the laws of the Arab countries. (Not offered 1964-65.)

Lichstein

452 *Law and Psychiatry* (2)

Designed to provide psychiatric information and insights useful for lawyers, including the concepts of modern psychiatry concerning personality, the nosology and etiology of mental disorders and their significance for purposes of criminal law, civil commitment, hospitalization, and other legal proceedings, veracity of witnesses, presentation of expert psychiatric testimony, etc. (Spring—evening.)

Allen, Zuck

455 *Legal Regulation of International Coercion* (2)

The process of legal decision in war and when expectations of violence are high in contemporary international law of war and coercive measures short of war such as limited naval blockade; legal aspects of modern methods of coercion—economic, political, psychological, and military; limited war and the modes of preventing escalation of total war; regulation of hostilities; problems concerning atomic, biological, chemical, and chemical weapons; war crimes and crimes against humanity. (RP) (Not offered 1964-65.)

Mailhot

461 *Problems in Communications Law* (2)

Institutional structure of mass media; continuing adjustment between public interest and the competitive economic system; mass communications process and its social function including lobbying activities; conflict between freedom of speech and the press and other similar community interests such as the right to a fair trial; protection of community moral standards, and national security; public information programs; types of control exercised over newspapers, motion pictures, television, radio, and its programming operations; concept of public interest in broadcasting; international communications including the function of ITU and the prospective development of communications satellite systems. (RP) (Not offered 1964-65.)

Mayer

465 *Oil and Gas Law and Regulation* (2)

Nature of landowner's and royalty owner's interest; nature of working interest owner's interest—the lease, its creation, interpretation, and termination; and resolution of conflicts among adjoining landowners and/or working interest owners (consecutive rights). Nature and mechanics of regulation of petroleum production and oil imports; federal vs. state regulation; federal regulation of gas—FPC, its jurisdiction and impact; national fuels policy—regulation of end use, conservation of resources, and equitable distribution of market among competing fossil fuels. Unit agreements; practical issues; theory; voluntary and compulsory mechanics; and supervision, enforcement, and judicial review. (Fall—evening.)

466 *Regulation of Securities and Securities Markets* (2)

M. Cohen

A study of state and federal laws governing the offering and distribution of securities to the public by corporate issuers and others, the regulation of securities markets, and the rights and liabilities of purchasers under such statutes. Particular emphasis will be given to statutes administered by the Securities and Exchange Commission. (Fall—evening.)

469 *Advanced Topics in Patent Law* (2)

L. Harris

Lectures and discussion; licensing and protection of industrial property; uses and abuses of patents; governmental regulation; protection abroad; the role of patents in business; economic and social functions of patents, trademarks, and copyrights. Prerequisite: Law 359. (RP) (Spring—evening.)

469 *Research in Patent, Trademark, and Copyright Law* (2)

L. Harris

Registration limited to students with at least a B average who have taken Law 466. *Advanced Topics in Patent Law* and related courses including, as a rule, *Trade Regulation Seminar*. Request in writing, with proposed outline of topic of research, must be submitted to the Dean at least one month prior to registration day. Registration permitted for one semester only; work must be completed within the semester and paper submitted not later than last day of classes. (RP) (Fall and spring—as arranged.)

471 *Research in Public Law* (2)

The Staff

Registration limited to students with at least a B average who have had a seminar or comparable course in field of proposed research. Request in writing, with proposed outline of topic of research, must be submitted to the Dean at least one month prior to registration day. Registration permitted for one semester only; work must be completed within the semester and paper submitted not later than last day of classes. (RP) (Fall and spring—as arranged.)

473 *Soviet Law* (2)

Ramondo

Concept of "socialist legality"; impact of Soviet legal system upon the individual in his relationship with the state and other participants in Soviet society; role of Communist Party in the institutional framework of the Soviet legal system; Soviet philosophy of law; state (constitutional) law including Soviet federalism, governmental agencies, and rights and obligations of citizenship; criminal law including economic crimes, role of social and public organizations in administration of justice, and concept of "administrative" punishment; property law including land tenure and personal property rights; labor law including the special role of trade unions and labor contracts; civil law including state enterprises as legal entities and the law of contracts and contracts; family law; procedural law, civil, criminal, and government arbitration; and international law. (Fall—evening.)

474 *Chinese Law* (2)

A short survey of the history of Chinese law and its social background; changes of Chinese law between the turn of the century and the end of the Manchu dynasty; legal concepts of the Chinese Republic from 1912 until the communist takeover in 1949. The philosophy and development of the communist legal system. (Spring—evening.)

475 *Taxation—Corporate* (2)

Bowmar, Hambrick

Analytical study of income tax problems in corporate decisions and distributions to shareholders of stock; corporate liquidations; reorganizations, mergers, and acquisitions.

recapitalizations; organization and sales of corporate businesses; collapsible corporations; carryovers. Prerequisite: Law 279. (Spring—evening.)

476 *Taxation—Accounting, Estates and Trusts, and Partnerships (2)*

Hambrick, Weaver

Survey of substantive provisions of federal income tax with respect to tax accounting, estates and trusts, and partnerships. Prerequisite: Law 279. (Spring—day and evening.)

480 *Taxation—Oil and Gas (2)*

Hambrick

Application of federal income tax to producing segment of oil and gas industry; common types of interests in producing properties; tax treatment of exploration expenses; intensive study of problems in the deduction of intangible development and drilling costs; concept of "economic interest"—who is entitled to depletion?; tax distinctions between leasing transactions, sharing transactions, and sales of oil and gas properties and prospects; "ABC" transactions; organizational problems in oil and gas ventures—joint operating agreements, general and limited partnerships, associations tax able as corporations and pooling arrangements; "carried interests" and other financial arrangements in development of oil and gas properties. Prerequisite: Law 279 (Spring—evening.)

485 *Seminar: Taxation (2)*

Barlow, Sapientza, D. Harris, Dunnan

Selected problems in federal income, estate and gift taxation, involving factual analysis and legal research, and the preparation of memoranda of law, legislative drafting or other appropriate disposition. Identical problems or cases will be assigned to small groups for development and disposition. Registration subject to approval of instructor. Prerequisite: Law 274 and 279. (RP) (Fall—evening.)

490 *Income Taxation of Foreign Business and Investment (2)*

Hambrick

The provisions and policies of the Federal Income Tax law applicable to foreign income, including considerations affecting the choice of methods of engaging in foreign business and investment, treatment of controlled foreign corporations, allocation of income in foreign commerce, credit for foreign taxes, principles and trends of U.S. tax treaties. (Not offered 1964-65.)

492 *Seminar: Trade Regulation (2)*

Weston, Kirkpatrick, Cox

Group study of current problems relating to unfair trade practices and federal antitrust laws. (RP) (Spring—evening.)

493-94 *Seminar: Regulation of Transportation (2-2)*

Various problems in connection with the regulation of surface, water, and air transportation carriers will be considered. Matters to be treated include the historical development of the transportation industries and relevant federal legislation, the scope of federal regulation, the regulation of the supply of transportation services, the public service obligations of operating carriers, the regulation of transportation rates, including consideration of the rate-making process and the regulation of rate competition between different transportation industries, and mergers in the transportation industry. (Academic year—evening.)

495 *Land Use Planning (2)*

Nutting

Selected problems in urban redevelopment and housing, with particular emphasis on problems in new current federal and state legislation. (RP) (Spring—evening.)

Linguistics—Graduate Study

COMMITTEE ON LINGUISTIC STUDY

J. G. Allee, Jr. (*Chairman*), W. G. Clubb, P. F. Gallagher, J. C. King, G. E. McSpadden, N. D. Nelson

Columbia College offers an interdepartmental Master of Arts field in Linguistics, which is directed by the Department of Germanic Languages and Literatures and the Department of Romance Languages and Literatures. Interested students should consult the Chairman of the Committee on Linguistic Study and the Chairman of the department concerned.

For information concerning work toward the degree of Doctor of Philosophy, see the Graduate Council pages 87-95.

There is no undergraduate major in the field of Linguistics.

The candidate's program will normally be selected from the following courses:

ENGLISH

125 <i>Introduction to English Linguistics</i> (3)	Allee
223-24 <i>Old English</i> (3-3)	Allee

GERMANIC LANGUAGES AND LITERATURES

201-2 <i>Middle High German</i> (3-3)	Legner
205-6 <i>Gothic</i> (3-3)	Legner
209-10 <i>Old High German</i> (3-3)	King
213-14 <i>Old Norse</i> (3-3)	Allee
223-24 <i>Linguistic Analysis of Modern German</i> (3-3)	King
225-26 <i>Seminar: Linguistics</i> (3-3)	King, Allee
227-28 <i>Sanskrit—Introduction to Indo-European Linguistics</i> (3-3)	King

MATHEMATICS

121 <i>Introduction to Mathematical Logic</i> (3)	Nelson
122 <i>Introduction to Abstract Algebra</i> (3)	The Staff
124 <i>Introduction to Matrix Theory</i> (3)	The Staff
201-2 <i>Mathematical Logic</i> (3-3)	Nelson

PHILOSOPHY

196 <i>Philosophy of Language</i> (3)	Schlagel
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PSYCHOLOGY

115 <i>Psychology of Language and Communication</i> (3)	Mosé
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ROMANCE LANGUAGES AND LITERATURES

FRENCH

- 203 *Problems of Pronunciation and Intonation* (3)
 212 *Historical French Grammar* (3)
 213-14 *Old French* (3-3)

Vigneras
 Vigneras
 Vigneras

SPANISH

- 203 *Problems of Pronunciation and Intonation* (3)
 212 *Historical Spanish Grammar* (3)
 214 *Old Spanish* (3)

McSpadden
 McSpadden
 McSpadden

GENERAL COURSES IN ROMANCE LANGUAGES AND LITERATURES

- 270 *Experimental Phonetics* (3)
 279 *Introduction to Romance Philology and Linguistics* (3)

McSpadden
 McSpadden

SLAVIC LANGUAGES AND LITERATURES

- 125 *Russian Linguistic Structure* (3)
 126 *Comparative Russian-English Linguistic Structure* (3)

SOCIOLOGY AND ANTHROPOLOGY

ANTHROPOLOGY

- 161 *Language and Culture* (3)
 193 *Anthropological Methods* (3)

Gallagher
 Campbell

STATISTICS

- 271-72 *Statistical Information Theory* (3-3)

Kullback

*Mathematics**

Professors F. E. Johnston, Florence Meats, N. D. Nelson; (Chairman) T. P. G. Liverman, N. A. Wiegmann
 Professorial Lecturers W. H. Marlow, D. M. Dröbn
 Associate Professors W. A. Smith, Hewitt Kenyon, Ludvik Janos (Visiting)
 Associate Professorial Lecturer Joseph Blum
 Assistant Professors R. Z. Vause, Geza Schay
 Lecturers Mabel Morris, A. J. Ziffer

* The Staff of Instruction is for the academic year 1963-64.
 † On sabbatical leave spring semester 1963-64.

*Bachelor of Arts or Bachelor of Science with a major in Mathematics (Departmental).—*Prerequisite: the Arts and Letters or the Science curriculum, respectively, pages 70-71. Required: in addition to the general requirements, pages 76-80, twenty-four semester units of Mathematics of approved second- and third-group courses.

*Master of Arts or Master of Science in the field of Mathematics.—*Prerequisite: a Bachelor of Arts or Bachelor of Science degree, respectively, with a major in Mathematics at the University, or the equivalent. Required: the general requirements, pages 83-85.

*Master of Arts in the field of Linguistics.—*See pages 87-92 and the departments of Germanic Languages and Literatures and Romance Languages and Literatures.

*Doctor of Philosophy.—*See pages 87-95.

*Bachelor of Arts in Education with a teaching field in Mathematics.—*Prerequisite: the Education curriculum, page 72.

Required: the Mathematics option and the professional courses listed in the School of Education Catalogue.

FIRST GROUP*

3 College Algebra (3)

Exponents and logarithms; linear equations; complex numbers; quadratic equations; introduction to theory of equations; mathematical induction and the binomial theorem; permutations, combinations, and probability; determinants; progressions. Prerequisite: one year each of high school algebra and high school geometry. (Fall and spring—day and evening; summer 1964.)

The Staff

6 Plane Trigonometry (3)

Prerequisite: two years of high school algebra and one year of high school geometry, or Mathematics 3 (or concurrent registration thereof). (Fall and spring—day and evening; summer 1964.)

The Staff

9 General Mathematics I (3)

For those students in the School of Education or others electing Mathematics 9 and 10 as a terminal sequence in mathematics. Propositional logic and truth values; the number system, number bases, arithmetical computation; algebraic functions; topics from plane geometry. Prerequisite: two years of high school mathematics. Not open to students who have had former Mathematics 2. (Fall and spring—day and evening; summer 1964.)

The Staff

0 General Mathematics II (3)

An introduction to matrices and vector spaces; non-Euclidean geometry; introduction to concepts of the calculus. Prerequisite: Mathematics 9 or former 2. (Fall—evening; spring—day and evening; summer 1964.)

The Staff

5 Finite Mathematics I (3)

Truth value connectives and switching circuits, partitions and counting, probability theory. Prerequisite: two years of high school mathematics. (Fall—day and evening; summer 1964.)

The Staff

6 Finite Mathematics II (3)

Vectors and matrices, mathematics of finance and accounting, linear programming, introduction to game theory. Prerequisite: Mathematics 15. (Spring—day and evening; summer 1964.)

The Staff

2 Calculus I (3)

Elementary concepts of analytic geometry. Differentiation and integration of algebraic functions with applications. Prerequisite: Mathematics 3 and 6, or two years of high school algebra, one year of high school geometry, and one-half year of high school trigonometry; or the equivalent. (Fall and spring—day and evening; summer 1964.)

The Staff

*Students registering for Mathematics 3, 6, 9, 15, 21, or 27 are required to take a placement examination.

- 22 Calculus II (3)**
Differentiation and integration of transcendental functions and applications, topics in analytic geometry, techniques of integration. Prerequisite: Mathematics 21. (Fall and spring—day and evening; summer 1964.) The Staff
- 23 Calculus III (3)**
Vector concepts, improper integrals, polar coordinates, and infinite series. Prerequisite: Mathematics 22. (Fall and spring—day and evening; summer 1964.) The Staff
- 24 Calculus IV (3)**
Multiple integration and partial differentiation with applications, vectors and solid geometry, differential equations. Prerequisite: Mathematics 23. (Fall and spring—day and evening; summer 1964.) The Staff
- 27 Calculus I and II (6)**
The equivalent of Mathematics 21 and 22. (Fall—day.) The Staff
- 28 Calculus III and IV (6)**
The equivalent of Mathematics 23 and 24. (Spring—day.) The Staff

SECOND GROUP*

- 101 Introduction to Mathematical Logic (3)**
Development of propositional and predicate calculi, basic semantic concepts, elementary inductive set theory, Boolean algebra. Prerequisite: Mathematics 24 or former 31, or Philosophy 121. (Fall—evening.) Nelson
- 102 Fundamental Concepts of Mathematics (3)**
Axiomatic set theory, cardinal and ordinal arithmetic, foundations of the real number system. Prerequisite: Mathematics 101 or permission of the instructor. (Not offered 1964-65.) Nelson
- 106 Introduction to Topology (3)**
(1965-66 and alternate years.) Kenyon
- 111 Mathematics for Engineers and Physicists I (3)**
Differential equations, linear algebra. (Fall and spring—day and evening; summer 1964.) The Staff
- 112 Mathematics for Engineers and Physicists II (3)**
Fourier series, Laplace transformation, partial differential equations. Prerequisite: Mathematics 111 or former 132. (Fall and spring—day and evening; summer 1964.) The Staff
- 120 Introduction to Theory of Numbers (3)**
(1965-66 and alternate years.) Vause
- 122 Introduction to Abstract Algebra (3)**
(Fall—evening; spring—day; summer 1964.) The Staff
- 124 Introduction to Matrix Theory (3)**
Elementary theory of finite vector spaces, determinants, equivalence, matrices with polynomial elements, similarity of matrices. (Fall—day; spring—evening; summer 1964.) The Staff
- 127 Foundations of Geometry (3)**
Alternative postulational developments of Euclidean geometry. Non-Euclidean geometrics. (Spring—evening.) The Staff
- 134 Introduction to Boundary Value Problems (3)**
Prerequisite: Mathematics 111 or former 132, or 142. (Spring—day.) Dribin
- 135 Projective Geometry (3)**
(Fall—evening.)

* Mathematics 24 or former 31 is prerequisite to all second group courses. Exception to this regulation may be made for Mathematics 101, 122, and 123. Students anticipating a substantial concentration in mathematics should consult with the Department about early completion of these courses.

- 139 *Advanced Calculus I* (3) The Staff
Limits, continuity, real number system, mean value theorems, partial differentiation, implicit function theorems, transformations, and mappings. (Fall—evening; spring—day; summer 1964.)
- 140 *Advanced Calculus II* (3) The Staff
Vector fields, multiple integrals, line and surface integrals, point set theory, theory of integration, improper integrals. Prerequisite: Mathematics 139. (Spring—evening; summer 1964.)
- 141 *Introduction to Infinite Series* (3) Mears
(Fall—evening.)
- 142 *Theory of Differential Equations* (3) The Staff
Prerequisite: Mathematics 139. (Fall—day.)
- 153 *Introduction to Numerical Analysis* (3) Marlow
(Fall—evening.)
- 157 *Introduction to Complex Variable Theory* (3) The Staff
(Fall—day.)
- 167 *Fourier Series and Spherical Harmonics* (3)
Prerequisite: Mathematics 111 or former 132. (Not offered 1964–65.)

THIRD GROUP

- 201–2 *Mathematical Logic* (3–3) Nelson
(1965–66 and alternate years.)
- 220 *Theory of Numbers* (3) Vause
(1965–66 and alternate years.)
- 237–38 *Theory of Functions of a Complex Variable* (3–3) The Staff
A year course; credit is not given for the first half until the second half is completed.
(1965–66 and alternate years.)
- 242 *Infinite Series* (3) Mears
(Spring—evening.)
- 243–44 *Numerical Analysis* (3–3) Marlow
(1965–66 and alternate years.)
- 249 *Ordinary Differential Equations* (3) The Staff
(Fall—day.)
- 250 *Integral Equations* (3)
(Not offered 1964–65.)
- 251–52 *Theory of Functions of a Real Variable* (3–3) The Staff
(Academic year—evening.)
- 255 *Differential Geometry* (3) Drabin
(Not offered 1964–65.)
- 256 *Introduction to Algebraic Geometry* (3) Drabin
(1965–66 and alternate years.)
- 257 *Theory of Groups* (3) Johnston
(Not offered 1964–65.)
- 261 *Generalized Functions and Operational Methods* (3) Liverman
Theory of generalized functions in one variable. Operational calculus of generalized functions. Applications to differential equations and Fourier analysis. Prerequisite: Mathematics 140. (1965–66 and alternate years.)

- 262 *Advanced Operational Methods* (3) Liverman
Generalized functions on test spaces of analytic functions. Operational calculus in several variables. Applications to partial differential and convolution equations of applied mathematics. Prerequisite: Mathematics 261. (1965-66 and alternate years.)
- 265-66 *Modern Algebra* (3-3) Wiegmann
Fundamental concepts of theory of groups, rings, and fields. Theory of finite fields, extensions of fields, Galois groups, factorization theory in Gaussian domains, and groups with operators. (Academic year—evening.)
- 267 *Topics in Matrix Theory* (3) Wiegmann
Theory of linear transformations (vector spaces over a division ring), advanced classical theory, matrix representation of groups and rings, special topics as time allows. Prerequisite: Mathematics 124 and an elementary knowledge of groups, rings, and fields. (1965-66 and alternate years.)
- 268 *Calculus of Variations* (3) Janos
(Fall—evening.)
- 270 *Tensor Analysis* (3) Schay
(Summer 1964.)
- 272 *Hilbert Space* (3) Schay
(Fall—evening.)
- 277 *Partial Differential Equations* (3) Schay
(Spring—evening.)
- 281-82 *Topology* (3-3) Kenyon
(Academic year—evening.)
- 291-92 *Seminar* (3-3) The Staff
(Academic year—day.)
- 293-96 *Reading and Research* (1-1) The Staff
(Academic year—as arranged.)
- 299-300 *Thesis* (3-3) The Staff
(Academic year—as arranged; summer 1964.)

Medicine*

Professors T. M. Brown (*Chairman*), M. I. Romansky, L. K. Alpert, J. M. Evans, B. Ethridge

Clinical Professors T. W. Mattingly, A. G. Prandoni, Herbert Pollack

Associate Professors A. E. Parrish, S. W. Bach, W. R. Felts, Jr., C. A. Kelsor, Jr.

Associate Clinical Professors Pearl Holly, J. J. Feffer, Halla Brown, O. R. Farley, D. C. Sun, Janet Travell, T. S. Sappington, I. W. Tamm, Alfred Brigulio, Joseph Ney, Joseph Bernstein, J. J. Rheingold, Irene Tamagna, J. W. Latimer, Jr., Arthur Rosenbaum, E. A. Combos, T. J. Abernethy, Benjamin Manchester, F. S. Bacon, R. A. Hines

Assistant Professors M. H. Jacobson, Irene Sun, B. C. Fowler, Ariel Hollander, Rosamund A. Mary Watt, N. C. Kramer, Juan Calatayud, H. W. Clark, Jr., Rosemary Milphon Corn

* The staff of instruction is for the academic year 1965-66.

Assistant Clinical Professors L. E. Putnam, Elizabeth Hill, L. J. Thomas, M. H. Stolar, S. J. N. Sugar, H. D. Ecker, C. W. Jones, C. W. Thompson, E. S. Glad-den, Maurice Mensh, F. J. Murray, E. P. Parker III, M. H. Rosenberg, J. W. DuChes, W. O. Bailey, Jr., Milton Gusack, Jack Kleh, T. A. Gander, Rashid Massumi, Ruth Benedict, H. M. Silver, H. E. Ticktin, J. P. Nasou, David Horwitz, B. C. Jones, Jr., W. H. Whitmore, Jr., L. S. Blumenthal, J. P. Mann, Edward Adams, R. R. Bel-ton, R. B. Castell, Louis Ross, S. W. Kirshtein, Israel Kessler, W. D. Bell, Marvin Fuchs, M. H. Rose, C. A. Schulman, Adolph Friedman, S. D. Lowbe, Alfred Boor, Herbert Abramson, J. H. Pent, Bertie Nelson, W. J. Schewe, C. A. Gaudes, R. R. Montgomery

Associates Maurice Protas, R. B. Miller, Jack Orloff, J. B. Marbury, F. D. Chapman, L. H. Snyder, R. G. Taylor, J. W. Long, Virginia Beelar, I. F. Ambury, R. N. Coale, J. T. Burns, T. L. Hattman, Boris Rakkin, L. A. Craig, Jr., A. W. Danish, Alvin Seltzer, John Walsh, C. E. Law, E. J. Rou, Conrad Gossels, H. O. Mott, J. H. Watson, N. H. Rubenstein, G. J. Fisher, W. L. Stone, R. H. Ostrow, C. D. Cooper, S. C. Pascoe, W. R. Elmantraut, G. A. Chapman, P. M. Gross, Eleanor Makel, S. A. Babin, Jr., Alice Brigham, Jack Crowell, D. S. Davis, J. H. Epstein, F. K. Harris II, R. F. Dyer, D. M. Torney, E. H. Bauersfeld, William Lewis, E. J. Leonard, J. W. Roark, H. I. Passen, C. W. Foulke, A. A. Lear, O. W. Donnelly, R. S. Poole, H. C. Sudin, S. J. Talpers, W. L. Hall, George Sharpe, C. J. Evenden, Raymond Sculetta, Thomas Shwarles

Instructor Karl Wipflinger

Clinical Instructors H. C. Bates, Jr., Jeanne Bateman, M. A. Soren, C. J. Siverstein, Jr., B. R. Cooperstein, M. G. Sherer, J. C. Maudes, R. L. Howard, G. C. Barbarean, Audrey Connor, Margaret McCabe, G. T. Kronmoss, Irwin Arden, S. W. Deiter, S. E. Barr, H. A. Moskovitz, J. T. Hagenbacher, G. N. Polls, J. L. Clifford, Daniel Deykin, Catherine Ray, H. G. Rose, Sammie Belcher, Morton Gault, A. W. McLaurin, Robert Steinmuller, W. I. Morrissey, R. A. Apter, Francis Chavler, H. D. Cohn, F. A. Peck, M. A. Mufson, Gilbert Harvate, R. S. Wilkinson, W. E. Gal-linek, L. H. Biben, W. H. Harvey, William Kurstin, S. H. Robinson, D. F. Som-mers, N. K. Bohrer, R. J. Dobrow, N. G. Goodman, J. D. Herman, Sheldon Kress, R. J. Levine, Frederick Meyers, Lily Ruckstuhl, Charles Stilling, H. O. Schindler, Paul Schlein, Richard Kaufman, B. H. Ono, F. F. Anne, Andre Barabian, S. W. Roemer, Richard Schindelfeld

Special Lecturers A. D. Kistin, Sol Katz, R. W. Berliner, T. H. McCavack, P. D. Comanduras, W. L. Nalla, Roy Hertz, Albert Smeetsma, W. H. Crosby, D. S. Fred-erickson, Pierre Tahan, T. J. Kennedy, Jr.

236 Clinical Microscopy

Conferences and studies in the clinical application of laboratory examinations of blood, body fluids, exudates, excreta (Spring—3 hours a week)

The Staff

242 Physical Diagnosis

Covers not only theoretical but practical application of principles of physical diagnosis as related to examination of patients (Spring—7 hours a week)

The Staff

244 Introduction to Medicine

Lectures and conferences covering the principles of internal medicine (Spring—1 hour a week)

The Staff

326 Introduction to Medical Management

The Staff

Training with bed patients under individual instruction designed to develop ability in examination of patients and case taking as well as practice in clinical microscopy. D. C. General Hospital.

328-429-430 Clinical Pathological Conferences

The Staff

Conferences are held at the University Hospital. Attendance is required of students during their medical clerkships there. (Academic year—1 hour a week.)

349 Medical Conferences

The Staff

D. C. General Hospital. (Fall—6 hours a week.)

421-22 Clinics

The Staff

Individual case studies under personal supervision of the Staff. Daily clinics on current medical problems and seminars stressing physiological aspects of diseases. Individual examinations and instructions in medical specialties. University Hospital. (Six weeks as arranged during academic year.)

Microbiology*

Professors A. M. Griffin, Mary Robbins, R. C. Parlett (Chairman)

Associate Professor Rudolph Hugh

Assistant Professors Elizabeth O'Hern, Lewis Afronti

Associates W. D. Hann, Meir Kende, Kun-yen Huang

Special Lecturers L. S. Baron, F. B. Gordon, Leon Jacobs, M. C. Leikind, T. G. Ward

Master of Arts or Master of Science in the field of Microbiology. Prerequisite: a Bachelor of Arts or a Bachelor of Science degree, respectively, from this University, or the equivalent, with a major in Biology, Botany, Chemistry, or Zoology. The undergraduate program must include the following courses or the equivalent: Biology 1-2; Chemistry 11-12, 21, 22, 151-52; Physics 1-2 or former 11, 12; Zoology 103-4.

Required: the general requirements, pages 83-85. The thirty semester hours must include (if not presented for admission) Microbiology 211 and 212, 293-94, 299, 300 and Biochemistry 221-22. The remaining courses are to be selected from Microbiology 213, 225, 227, 230, 231, and 233. The student with much microbiological background may substitute for credit one or more courses from the following: cytology, genetics, cell physiology, entomology, histology, biostatistics, and protozoology. It is not always possible to arrange courses and research so that the student can be assured of completing all required work in one academic year.

Doctor of Philosophy. See pages 87-95.

110 Medical Microbiology

Parlett and Staff

Lecture (4 hours), laboratory (8 hours). For medical students. Bacteria, rickettsiae, viruses, yeasts, molds, protozoa, and metazoa which relate to the health and disease of man—cultural study of most important forms; methods of diagnosis by microscopic, cultural, immunologic, and animal reactions; theory and methods of immunology; vaccines, serums, antitoxins. (Spring—at arranged.)

211 Microbiology (4)

The Staff

Lecture (2 hours), laboratory (4 hours). Graduate course on the study of bacteria, fungi, rickettsiae and viruses. Prerequisite: any biological laboratory science. Chemistry 151-52. Laboratory fee, \$16. (Fall—day.)

* The Staff of Instruction is for the academic year 1965-66.

- 212 *Pathogenic Microbiology* (4) The Staff
Lecture (2 hours), laboratory (4 hours). Continuation of 211 with emphasis upon the harmful activities of microorganisms. Prerequisite: Microbiology 211 or the equivalent. Laboratory fee, \$16. (Spring—day.)
- 217 *Advanced Mycology* (4) O'Hern
Lecture (2 hours), laboratory (4 hours). Advanced study of the fungi—emphasizing culturing and determinative techniques. Prerequisite: Microbiology 211 or the equivalent. Laboratory fee, \$16. (1965-66 and alternate years; fall—as arranged.)
- 225 *Microbial Chemistry and Physiology* (3) Allrouth
A lecture course. The biochemical features peculiar to various microorganisms—especially bacteria—are described and are compared with those of the animal cell. Includes discussion of the use of microorganisms in the elucidation of problems in biochemistry. Prerequisite: Biochemistry 223-22 or the equivalent. Microbiology 211 or the equivalent is recommended. (1965-66 and alternate years; fall—as arranged.)
- 227 *Microbial Pharmacology* (2) Allrouth
A lecture course describing the interactions of drugs and microorganisms—action of drugs on microbes, resistance of microbes to drugs, metabolism of drugs by microbes. Includes discussion of the selective action of drugs toward microbial and animal cells. Prerequisite: Microbiology 225 or permission of the instructor. (1964-65 and alternate years; fall—as arranged.)
- 229 *Statistics and Microbiology* (3) Griffin
The application of statistical methods to the problems of microbiology. For graduate students. Prerequisite: Elementary college algebra. (Spring—as arranged.)
- 231 *Immunology and Immunochemistry* (4) Parlett
Preparation and testing of serological materials. Demonstration of basic serological phenomena. Prerequisite: Microbiology 211. Laboratory fee, \$16. (1964-65 and alternate years; fall—as arranged.)
- 233 *Virology* (4) Robbins
Study of viruses and rickettsiae. Lectures and laboratory exercises. For graduate students. Prerequisite: Microbiology 211. Laboratory fee, \$16. (1965-66 and alternate years; fall—as arranged.)
- 249-50 *Introduction to Medical Research** (3-3) The Staff
Primarily for graduate students. A comprehensive introduction to the major medical research techniques—statistical, physical, chemical, electrical, and radiological—as applied to biological materials in the medical sciences. Laboratory fee, \$7.50 a semester. (Academic year—W 1-5 pm.)
- 291-94 *Staff Seminar* (1-1) The Staff
For graduate students. Biweekly throughout the year. (Academic year—as arranged.)
- 295-96 *Research in Microbiology* (arr.) The Staff
(Academic year—as arranged.)
- 299-300 *Thesis* (3-3) The Staff

Music

See "Art"

* An interdepartmental course. The student should register in the department directing his research.

Neurology and Neurological Surgery*

Professors J. W. Watts (Chairman), Harold Stevens, R. S. Paine

Clinical Professor J. M. Williams

Associate Clinical Professors R. H. Groh, J. F. Fazekas, H. V. Rizzoli

Assistant Clinical Professors J. P. Murphy, A. S. Dekaban, Harvey Ammerman, G. J. Havea, G. M. Swain

Associates G. D. Weickhardt, C. A. Marsan, A. J. Levens, Ninos Myrianthopoulos

Clinical Instructors M. C. Korengold, J. T. Lord, N. H. Horwitz, Z. W. Sanders, R. H. Robertson, R. A. Mendelsohn, Ruth Jakoby, Virginia Duggins, L. C. McHenry, Jr., A. P. Hustead, K. S. Off Abraham, V. S. Vaid, Karen Nelson

Special Lecturer K. M. Earle

250 Neurology: Basic

Methods of studying the form and function of the nervous system are presented in lectures and laboratory demonstrations. The transition between the basic sciences and clinical neurology is stressed and correlated. (Spring—1 hour a week.)

Stevens and Staff

Watts, Stevens

331 Neurology and Neurological Surgery

Clinical lectures and demonstrations. (Fall—2 hours a week.)

Watts and Staff

335-36 Neurosurgical Conferences

Clinical conferences weekly. D. C. General Hospital.

431-32 Neurology and Neurological Surgery Clinic

Neurological outpatient clinic. Consultation of staff on ambulatory cases, demonstration of diagnostic procedures.

The Staff

Obstetrics and Gynecology*

Professors John Parks, R. H. Barter (Chairman)

Clinical Professor S. M. Dodek

Associate Professors J. C. Sites, W. P. McKelway

Associate Clinical Professors J. A. Dushabek, C. K. Fraser, J. K. Cromer, Dwight Callagan, Edward Zimmerman

Assistant Clinical Professors Caroline Jackson, T. M. Leonard, W. T. Lady, T. A. Wilson, J. R. Epstein, S. H. Sica, G. L. Jarvis

Associates B. W. Richwine, F. S. Rogers, R. M. Roll, J. W. Pearson, Jr., Shirley Martin, N. J. Price, M. S. Kaufman, M. P. Footer, J. C. Walsh, Donald Walters, J. M. Friedman, L. M. Liverett, Peter Soyster, H. P. Trenchler

* The Staff of Instruction is for the academic year 1964-65.

Clinical Instructors A. S. Bright, W. H. Cooper, I. W. Royner, M. W. Sandmever, Jr., N. M. Tart, Elizabeth Crisp, L. W. Davis, R. E. Birren, A. W. Winkler, Benny Waxman, L. D. Amorosi, S. M. Belinsky, R. V. Erkenbeck, J. R. Marshall, F. E. Cahres, John Lukasik

254 *Introduction to Obstetrics and Gynecology* Dadek, Fraser
Lectures and demonstrations on the development and physiology of the female reproductive system and management of normal pregnancy. (Spring—1 hour a week.)

301-2 *Manikin Demonstrations* Waxman
The mechanism of labor and various types of operative delivery demonstrated to students of the junior class. D. C. General Hospital. (One hour a week for six weeks—rotation as arranged during academic year.)

37-38 *Obstetrics and Gynecology* Parks, Barter, Sites, McKelway
Lectures and demonstrations on the principles of obstetrics and gynecology. (Academic year—4 hours a week.)

41-42 *Clinical Obstetrics* The Staff
Students participate in prenatal and postnatal clinic care, observe the course of labor and deliver patients under supervision, attend daily departmental conferences and ward rounds in the University and D. C. General hospitals. (Academic year—4 hours a week.)

43-44 *Clinical Obstetrics and Gynecology* The Staff
Continuation of Obstetrics and Gynecology 41-42. (Academic year—4 hours a week.)

Ophthalmology*

Clinical Professors E. A. W. Sheppard, E. A. Gerschlager, J. H. King, Jr., L. E. Zimmerman

Associate Clinical Professor R. W. Wilkinson

Assistant Professor J. W. McTigue (Chairman)

Junior Clinical Professors W. J. Romelko, W. P. Chaffant, Jr., W. J. G. Davis, R. E. duPrey, Robert Day, M. G. Alger, B. S. Fine

Associate Professors J. H. Loder, W. B. Clew

Clinical Instructors J. R. Werner, Stephen Pappas, Jerome L. Lomax

52 *Ophthalmology* The Staff
Lecture course presenting aspects of all the principles of ophthalmology. (Fall—one hour a week for sixteen weeks as arranged.)

47-48 *Clinic* The Staff
Each student is given individual instruction in ophthalmological diagnosis. (Academic year—4 hours as arranged.)

* The Staff of Instruction is for the academic year 1963-64.

Otolaryngology*

Associate Clinical Professor J. J. McFarland, Jr. (*Chairman*)

Assistant Clinical Professors Catharine Birch, J. L. Levine, M. E. Krucoff, R. S. Page,

Jr., J. A. Sabri, W. M. Tribble

Clinical Instructors B. M. Webb, I. S. Jaffee

351 Otolaryngology

Lectures and demonstrations on anatomy, physiology, and diseases of the ear, nose, and throat. (Spring—1 hour a week for fourteen weeks.)

The Staff

354 Bronchoscopy

A series of lectures on the fundamental principles and the use of instruments, including both the bronchoscope and esophagoscope. (Spring—1 hour a week for two weeks.)

The Staff

355-56 Clinic

Practical and clinical instruction in the diagnosis and treatment of diseases of the ear, nose, and throat. University Hospital. (1½ hours a week in rotation as arranged during academic year.)

The Staff

Pathology*

Professors T. M. Peery (*Chairman*), W. R. Duryee (*Research*), F. N. Miller, Jr.

Clinical Professors E. B. Smith, L. E. Zimmerman, E. B. Helwig (*Dermatology*)

Associate Professors William Newman, W. L. Marsh

Associate Clinical Professors Louis Hansen, V. E. Martens, Theodore Winship

Assistant Professors Lois Platt (*Cytology*), Alexander Breslow, F. S. Jannotta

Assistant Clinical Professor Elmar Zeitler

Clinical Instructors R. L. Davis, P. W. Lampert

SPECIAL STAFF FOR DEMONSTRATIONS

Associate Clinical Professors J. S. Howe, R. G. Gottschalk

Assistant Clinical Professors R. E. Palmer, W. F. Enos, Cornelia Hoch-Ligeti, L. W. Fix, Grace Guin

Associate C. B. Cook

Clinical Instructors D. R. Parkinson, I. D. Godwin

Special Lecturer L. C. Johnson

Bachelor of Science in Medical Technology.—Prerequisite: the Science curriculum, pages 70-71, including Biology 1-2, Chemistry 11-12, and Microbiology 211 and 212.

* The Staff of Instruction is for the academic year 1963-64

Required: the general requirements, pages 76-80, including Chemistry 21 and 22, and the following second-group courses offered in the University Hospital: Pathology 115-16, 117-18, and 119-20.

Doctor of Philosophy.—See pages 87-95.

- 115-16 Introduction to Medical Science (1-1)** Marsh and Staff
For students in medical technology at the University Hospital. These lectures, based upon physiology, pathology, and medicine, provide a background for the interpretation of laboratory data. (Academic year—1 hour a week.)
- 117-18 Principles in Medical Technology (4-4)** Marsh and Staff
For students in medical technology at the University Hospital. Theories, principles, and sources of error, of the methods used in clinical chemistry, clinical bacteriology, serology, hematology, and clinical microscopy. (Academic year—4 hours a week.)
- 119-20 Medical Technology Laboratory (10-10)** Marsh and Staff
Practice and experience by rotation through the various divisions of the Pathology laboratories of the University Hospital, as follows: hematology and urinalysis, 12 weeks; chemistry, 12 weeks; bacteriology and parasitology, 10 weeks; blood bank, 8 weeks; serology, 4 weeks; tissue pathology, 4 weeks. (30 hours a week for 50 weeks.)
- 259 Pathology** Peery, Miller, Breslow, Jannotta
General pathology of inflammations, degenerations, malformations, and neoplasms. Special pathology of the organs and specific diseases. The laboratory work consists of the gross and microscopic study of diseased tissue. Special emphasis is placed on the functional effects of the various pathologic changes. (Fall—12 hours a week.)
- 261 Necropsy** The Staff
Students are required to attend and assist in the performance of necropsies at the University Hospital. (Fall—as arranged.)
- 266 Clinico-pathologic Correlation Conferences** Peery
Case studies demonstrating the pathologic significance of major clinical symptoms and physical signs. (Spring—1 hour a week.)
- 268 Seminars in Pathology (elective)** The Staff
Participation in advanced studies in anatomical pathology. (Spring—2 hours a week.)
- 270 Forensic Pathology and Medical Jurisprudence (elective)** Miller
Forensic pathology, toxicology, chemistry, and immunology. The legal and ethical rights and responsibilities of physicians. Legal problems in medicine. (Spring—1 hour a week.)
- 272 Problems in Experimental Cellular Pathology (elective)** Duryee
Cytological and biophysical aspects of cellular function in relation to normal and selected pathological conditions. (Spring—1 hour a week.)
- 274 Readings in Pathology (elective)** The Staff
Participation in selective review of advanced topics in pathology. (Spring—1 hour a week.)
- 276 Surgical Pathology (elective—limited to 2 students)** Newman
Gross and microscopic examination of assigned surgical specimens, with clinical correlation. (Spring—6 hours a week.)
- 278 Necropsy Pathology (elective)** Breslow, Jannotta
Participation in detailed study of selected cases, with clinical correlation. (Spring—3 hours a week.)
- 280 Demonstrations in Pathology (elective)** Special Staff
Gross specimens from several hospitals are demonstrated and discussed. The University Hospital laboratories for clinical pathology are visited and their functions are demonstrated. (Spring—1 hour a week.)

423-24 *Surgical Pathology*

Weekly conferences are held with the student group assigned to the surgical clerkship, reviewing current surgical specimens. Misanik

428-429-430 *Clinical Pathological Conferences*

Weekly conferences are held continuously at the University Hospital. Students attend during the four months of their medical clerkships at the University Hospital. The Staff

493-94 *Pathology Clerkship (elective)*

A limited number of students receive individual training in surgical pathology and necropsies in the laboratories of the University Hospital. (Academic year—as arranged.) The Staff

*Pediatrics**

Clinical Professors Margaret Nicholson, W. S. Anderson, R. H. Parrott, L. E. Hoeck, W. A. Howard (Chairman), J. A. Washington, R. S. Lourie

Associate Clinical Professors T. E. Reichelderfer, Margaret Gutelius

Assistant Professors S. L. Leikin, Wellington Hung, Artemis Simopoulos, E. V. Soto, Mildred Tate

Assistant Clinical Professors Mabel Grosvenor, Aaron Nimetz, George Maksim, A. B. Coleman, R. E. Martin, William Stark, J. R. Puig

Associates J. H. Peacock, Jr., Mary Sartwell, C. F. Stiegler, H. G. Clark, Adrian Recinos, Jr., C. R. Webb, A. R. MacPherson, G. J. Cohen, Bennett Olshaker

Instructor Leon Cytryn

Clinical Instructors H. H. Diamond, R. H. Mitchell, R. O. Warthen, Emilie Black, R. H. Anderson, W. G. Preisser, H. T. Yates, Roger Bergstrom, Mary Fox, S. Z. Goldblatt, Hilary Millar, Harold Plotsky, A. J. Modlin, Jean Lockhart, C. W. Dole, Jr., Gloria Eng, Belinda Straight, Jean Yacoubian, T. H. Anders, Mourat, Morris Fettel, A. M. Rivera, Agnes Schweitzer

256 *Pediatrics*

Lectures on physiology of the newborn, normal behavior, emotional and physical development, infant nutrition, diseases of the newborn, common anomalies and systematization of infancy and childhood. Medical School. (Spring—2 hours a week.) Howard and Staff

355 *Pediatrics*

Introduction to clinical pediatrics. Lectures, demonstrations, and case presentations designed to familiarize the student with history taking and physical diagnosis in various pathologic states, and stressing pathophysiology and management. (Fall—2 hours a week.) Reichelderfer and Staff

465 *Pediatric Psychiatry*

Lectures on neuropsychiatry of children and adolescents (in cooperation with the Department of Psychiatry). (Fall—as arranged.) Lourie and Staff

477-78 *Clinical Clerkship*

Full time, including assignment to night and holiday admissions. Case studies on ward. Howard and Staff

* The Staff of Instruction is for the academic year 1963-64.

under direct Resident supervision. Ward rounds with Staff and Residents. Twelve students. Children's Hospital. (Nine weeks as arranged during academic year.)

559-60 *Outpatient Clinics* Howard and Staff

Work in Medical and Specialty clinics including surgery, allergy, X-ray, child welfare, radiology, dermatology, neurology, and child guidance. Children's Hospital. (Academic year—as arranged.)

561-62 *Clinical Pathological Conferences* Howard and Staff

Clinical and pathological discussion of recent patient history and laboratory data. Medical School. (Academic year—1 hour a week.)

563-64 *Teaching Rounds* Gutelius and Staff

Discussion of clinical problems of diagnosis and treatment of current patients. Children's Hospital. (Academic year—three times a week.)

567-68 *Clinical Conferences* Howard and Staff

Required. Staff and student discussion of current problems in pediatrics with review of recent literature. Children's Hospital. (Academic year—3 hours a week.)

569-70 *Clinical Pediatric Psychiatry* Lourie and Staff

Clerkship in fourth year including Well Baby Clinic. Group and class conferences. (Academic year—as arranged.)

571-72 *Pediatric Electives* Howard and Staff

(Academic year—as arranged.)

Pharmacology *

Professor H. C. Mandelt† (Chairman)

Associate Professor R. G. Smith

Professorial Lecturer B. B. Brodie

Associate Professor Clarke Davison

Assistant Professors V. H. Cobb, Jr., T. M. Farber, Paul Mard, Melvin Reich (Research), Elizabeth Tidball (Research), W. P. Weiss (Research), W. R. Jendorf (Research)

Special Lecturer F. E. Hahn

Master of Arts or Master of Science in the field of Pharmacology.—Prerequisite: a Bachelor of Arts or Bachelor of Science degree, respectively. The undergraduate program must include the following courses or the equivalent: Biology 1-2; Physics 1-2; Chemistry II-III, 22, 151-52. One year of calculus and a course in physical chemistry should be included, but these courses may be taken during the work towards the Master's degree.

Based on the general requirements, pages 31-35, including Biochemistry 224-225; Physiology 232; Pharmacology 261, 267-68, 269-70, 299-300. The remaining courses may be selected from Biochemistry 224, 241; Chemistry 156; Physiology 259; Microbiology 211, 222, 223; Pharmacology 249-50, 272, 273-80, 281, 283.

Lector of Philosophy.—See pages 87-95.

249-50 *Introduction to Medical Research*‡ (2-3) Reich and Staff

Primarily for graduate students. A comprehensive introduction to the major medical

* The staff of instruction is for the academic year 1963-64.

† On sabbatical leave spring semester 1963-64.

‡ An interdepartmental course. The student should register in the department directing his research.

research techniques—anatomical, statistical, physical, chemical, electrical, and radio isotopic—as applied to biological materials in the medical sciences. Laboratory fee, \$7.50 a semester. (Academic year—W 1-5 pm.)

- 261 *Pharmacology* (7) Mandel and Staff
Lectures, laboratories, and recitations concerning the interaction of drugs and biological systems as a basis for the rational therapy of disease. Open to qualified nonmedical students. (Fall—9 hours a week.)

- 267-68 *Pharmacological Research* (3-3) The Staff
Primarily for those properly qualified graduate and medical students seeking careers in pharmacology. (Academic year—as arranged.)

- 269-70 *Pharmacology Seminar* (1-1) The Staff
Recent advances in pharmacology. For those interested in pharmacological research. Open to qualified nonmedical students. (Academic year—2 hours a week.)

- 272 *Physiological Disposition of Drugs* (3) Cohn, Davison
A lecture and seminar course dealing with the fate of drugs in biological tissue. Discussion of absorption, distribution, chemical alteration, and excretion of drugs, and the physical, chemical, and biological factors affecting these processes. Prerequisite: Pharmacology 261. (1965-66 and alternate years: spring—as arranged.)

- 279-80 *Special Topics in Pharmacology* (arr.) Farber, Mazel, and Staff
A lecture course dealing with select aspects of drug action. Prerequisite: Pharmacology 261. (Academic year—as arranged.)

- 281 *Physiological Techniques in Pharmacology* (3) Farber, Mazel
A series of specially selected experiments with supplementary lectures designed to illustrate physiological techniques useful in obtaining information as to mechanism and site of action of pharmacological agents. Prerequisite or concurrent registration: Pharmacology 261. (1965-66 and alternate years: fall—as arranged.)

- 283 *Biochemical Techniques in Pharmacology* (3) Cohn, Revell
A lecture and laboratory course designed to equip the student with the theory and practice of modern biochemical techniques applicable to the study of the metabolic fate and mechanism of action of drugs. Prerequisite or concurrent registration: Pharmacology 261. (1964-65 and alternate years: fall—as arranged.)

- 299-300 *Thesis* (3-3) The Staff
Required of Master of Arts and Master of Science candidates. (Academic year—as arranged.)

Philosophy*

Professor C. E. Gauss (Chairman)

Associate Professor R. H. Schlagel

Assistant Professor C. H. Pfuntner

Bachelor of Arts with a major in Philosophy (Field of Study).—Prerequisite: the Arts and Letters curriculum, page 70.

Required, in addition to the general requirements, pages 76-80, the passing of the Philosophy major examination at the end of the senior year. The coordinated knowledge upon which the student will be examined is schematized under the following two general headings:

* The Staff of Instruction is for the academic year 1963-64

ings: (1) methodology and theory of knowledge and (2) the history of ideas and social philosophy. The Department of Philosophy provides a proseminar (Philosophy 199-200) intended to assist the student in preparing for the major examination.

Master of Arts in the field of Philosophy.—Prerequisite: an undergraduate major in Philosophy at this University or the equivalent, as attested by the passing of this University's major examination in Philosophy; the following specific courses or the equivalent: Philosophy 111-12, 113, 121-22, and 131.

Required: the general requirements, pages 83-85. As much as possible of the required course work must be in third group courses. Where second group courses are elected students will be required to do more intensive and extensive work than undergraduates. A general written examination in two areas of Philosophy and an oral examination in the student's special field will be required in addition to a Master's thesis of substantial length.

Master of Arts in the field of Linguistics.—See pages 321-22, and the departments of Germanic Languages and Literatures and Romance Languages and Literatures.

FIRST GROUP

51-52 *Introduction to Philosophy* (3-3)

The Staff

A critical introduction to the problems of modern philosophy in relation to scientific and social developments since the Renaissance. This course is not merely intended as an introduction to those courses in philosophy which follow but is a unit complete in itself for those students in other departments interested in the problems of philosophy relevant to modern thought. (Academic year—day and evening; summer 1964.)

SECOND GROUP

11-12 *History of Philosophy* (3-3)

Pfuntner

The history of western philosophy from early Greece to Kant, seen as the development and modification of the Hellenic cultural pattern. (Academic year—evening.)

13 *History of 19th and 20th Century Philosophy* (3)

Pfuntner

European philosophy from the time of Kant. "Isms" and ideologies at the root of contemporary thought. (Fall—day; summer 1964.)

21-22 *Logic and Scientific Method* (3-3)

Pfuntner

First half: the elementary principles of valid reasoning with emphasis on developing skill in using these principles, introductory consideration of symbolic logic, the nature of a formal system. *Second half:* general analysis of the methods of investigation and reasoning used in the natural and social sciences, procedures and requirements of definition, classification and sorting, analogical and inductive inference, causal determination, the nature and function of hypothesis, measurement, principles of the theory of probability. (Academic year—day.)

31 *Ethics* (3)

Schlager

A critical examination of traditional ethical theories from Plato to Avicenna. Consideration of the theoretical problems of ethics: the meaning of "good", the nature of ethical judgment, the justification of ethical standards. The course aims at enabling the student to develop his own ethical view as a consequence of his greater understanding of moral phenomena. (Fall—evening; summer 1964.)

51 *The Philosophy of Science* (3)

Schlager

Brief history of modern science; problems of the meaning of causality, the justification of induction, theories of probability; the nature of scientific explanation and the status of inferred entities; the nature of a mathematical system. Consideration of the philosophic import of certain scientific theories such as Einstein's theory of relativity, Heisenberg's principle of indeterminacy, and Bohr's principle of complementarity. (Fall—day.)

12 *Epistemology* (3)

Schlager

The meaning and criteria of truth; the meaning and cognitive significance of common

sense, scientific, and religious propositions or beliefs. Study of problems related to perception, verification, universals, *a priori* and *a posteriori* knowledge, the concept of mind. (Spring—day.)

162 *Aesthetics* (3)

The nature of aesthetic experience, problems of appreciation and judgment in the arts, and of the theories and process of artistic creation. Emphasis on contemporary arts and criticism. (Spring—day.) Gauss

172 *American Philosophy* (3)

The philosophies of Peirce, Royce, James, Dewey, and Santayana as representatives of American thought. (Spring—day; summer 1964.) Pfuntner

180 *Philosophy of History* (3)

Problems of historical knowledge and explanation. Critique of philosophies of history. (Fall—day.) Gauss

193 *Topics in Contemporary Philosophy* (3)

Intensive study of one selected topic; topic for 1963-64: philosophy in contemporary literature. (Summer 1964.) Gauss

196 *Philosophy of Language* (3)

Investigation of the logical syntax of language, different symbolic forms, and problems of meaning; linguistic reference. (Spring—day.) Schlager

199-201 *Preseminar Readings for the Major* (3-3)

Conferences and group discussions in preparation for field of study major examination (Academic year—as arranged.) The Staff

THIRD GROUP

201-2 *Readings and Research* (3-3)

Advanced readings and reports. Investigation of special problems. —as arranged.) The Staff (Academic year)

211 *Seminar: Plato* (3)

Intensive study of Plato's later dialogues. (Fall—evening.) Gauss

216 *Seminar: Kant* (3)

A study of one of Kant's Critiques. (Not offered 1964-65.) Schlager

252 *Seminar: Epistemology* (3)

Intensive study of selected topics in theory of knowledge. (Spring—evening.) Schlager

262 *Seminar: Aesthetics* (3)

Intensive study in selected problems. (Not offered 1964-65.) Gauss

272 *Seminar: American Philosophy* (3)

Topic for spring 1965—development of American Pragmatism. (Spring—evening.) Pfuntner

299-300 *Thesis* (3-3)

The Staff

RELATED COURSES IN OTHER DEPARTMENTS

Classical Languages and Literatures 71-72, *Greek and Roman Backgrounds in Literature* (3-3)

Mathematics 101, *Introduction to Mathematical Logic* (3)

Psychology 196, *History and Systems of Psychology* (3)

Physical Education for Men*

Professors W. H. Myers, J. H. Krupa (Chairman) R. G. Hanken, V. J. DeAngelis

Associate Professorial Lecturer W. D. Thompson

Lecturer Pat Abernethy

Lecturers W. J. Reinhart, J. V. Camp, V. D. Elder

This department includes all the recognized athletic activities of the men students of the University.

Two years of Physical Education (Physical Education 1-2 and 11-12) are required of all men for graduation, except those students exempt under the regulations stated on page 68.

Upon entering the University, all freshmen or other undergraduate students who have completed the Physical Education requirements are given a medical examination. Assignments for medical examinations will be given at the time of registration. The students who satisfy the requirements of the medical examination are then given a physical efficiency test in the general body skills of agility, endurance, and strength; and in swimming. If the physical efficiency test is passed, the student may elect from the following list of activities:

Setting-up Exercises (stretching exercises)

Body Building Exercises (gymnastic apparatus and weight training skills)

Competitive games and sports

Swimming (beginner, intermediate, advanced, life saving)

If the physical efficiency test is not passed, the student will be assigned to a class for training in the above activities in the order listed.

The Department furnishes gymnasium uniforms and personal equipment upon receipt of a small payment.

Bachelor of Science in Physical Education.—Prerequisite: the Physical Education for Men curriculum, page 72. The requirements for the degree are stated on pages 143-44, 46-47.

Bachelor of Arts in Education with (1) a major in secondary education combined with a teaching field in Physical Education and (2) a minor in elementary education with an area of specialization in Physical Education.—see the School of Education curriculum.

Master of Arts in Education with a field in Physical Education.—See pages 146-50

FIRST GROUP

1-2 Freshman Physical Education (1-1)

The Staff

Two periods of supervised activity a week. Physical Education fee, \$4.00 a semester. (Academic year—as arranged.)

11-12 Sophomore Physical Education (1-1)

The Staff

Two periods of supervised activity a week. Physical Education fee, \$4.50 a semester. (Academic year—as arranged.)

41 Personal Health (1)

Krupa

Physical, mental, and social health of the individual—understanding, significance, and promotion. Emphasis on personal health knowledge for the future teacher. (Spring—day.)

* The University is not responsible for injuries sustained by students engaged in extracurricular sports or in the activities of the departments of Physical Education, and the student assumes full responsibility.

† The School of Instruction is for the academic year 1963-64.

‡ The Physical Education fee is required for registration in one or more of the activity courses.

- 43-44 *Techniques of Physical Education Motor Activities* (2-2) DeAngelis, Elder
Fundamental skills, rules, and organization. Physical Education fee*, \$4.50 a semester. (Academic year—day.)
- 45-46 *Teaching Individual and Dual Sports in Secondary Schools* (2-2) Hanken, Krupa
Tennis, golf, swimming, wrestling, badminton, bowling. Physical Education fee*, \$4.50 a semester. (Academic year—day.)
- 47 *Introduction to Physical Education* (2) Myers
An orientation course presenting the problems of physical education, vocational analysis, scientific foundations, and scope of field. (Fall—day.)
- 48 *Introduction to Recreation* (2) Hanken
The role of recreation in modern living; current practices in community recreation work; standards of training, experience, and salary; types of leadership. (Spring—day.)
- 49 *Human Anatomy* (3) Stallings
The structure of the human body. Basic course for physical education majors. Also open to both men and women not majoring in Physical Education. Prerequisite: Biology 1-2. (Fall—day.)
- 50 *Kinesiology* (3) Lawrence
A study of the anatomical mechanism of movement, analysis of the action of muscles in physical education activities. Prerequisite: an approved course in anatomy. (Spring—day.)
- 59-60 *Leadership Organization in the Intramural Program* (2-2) DeAngelis
Principles of administration, organization, and supervision of intramural activities in the physical education program of the junior high school, senior high school, and college. (Academic year—day.)

SECOND GROUP

- 101 *Physical Education in the Elementary School* (3) Burtner, Snodgrass
Physical growth and development of the child and adolescent. Survey of age characteristics and organization of physical education activities for the various age levels in elementary school, playground, and settlement house programs. Methods and materials of tumbling, games, dance, and self testing activities. (Fall—day; spring—evening; summer 1964.)
- 103 *History and Principles of Physical Education* (3) Stallings, Myers
Survey of history as it relates to contemporary physical education objectives, and philosophy of physical education. (Fall—day.)
- 105-6 *Adapted Physical Education and Physical Examinations* (3-3) Lawrence
Cause and correction of faulty body mechanics, physical examination methods for the diagnosis of postural defects, prescription of exercises, and program adaptation. Prerequisite: Physical Education 49 and 50. (Academic year—day.)
- 107 *Teaching Recreational Dance* (1 to 2) Burtner, Mason
Methods and materials for teaching the country and social dances of America and the folk dances of other countries to secondary school age and adult groups. Square dancing is included. Physical Education fee*, \$4.50. (Fall—day.)
- 113-14 *Practice in Teaching Physical Education Activities* (2 to 4-2 to 4) Hanken and Staff
Principals and methods applied to learning and teaching physical education activities.

* The Physical Education fee is required for registration in one or more of the activity courses.

Supervised laboratory. Physical Education fee*, \$4.50 a semester. (Academic year—day.)

115-16 *Teaching Team Sports in Secondary Schools* (2 to 4-2 to 4) DeAngelis, Hanken

Football, basketball, baseball, track and field. Physical Education fee*, \$4.50 a semester. (Academic year—day.)

117 *Teaching Modern Dance* (1 to 2) Burtner

Techniques for the teaching of movement as a medium of expression. Practical work in body technique, composition, and the analysis of accompaniment for dance including instrumental, voice, and percussion. Application is made to both secondary school and adult age levels. Physical Education fee*, \$4.50. (1964-65 and alternate years: fall—day.)

118 *Dance Production* (1 to 2) Burtner

Planning and staging of performances for demonstrations, dance concerts, and folk festivals. Lighting, costuming, sets, and make-up. Choreography for concerts, musicals, and plays for students taking course for two credits. Physical Education fee*, \$4.50. (1964-65 and alternate years: spring—day.)

121 *School and Community Health Programs* (3) Krupa

Health services, healthful environment, health instruction, sources of material for general health knowledge. Prerequisite: Biology 1-2. (Fall—evening.)

122 *Methods and Materials for Health Education* (3) Stallings

Methods and materials for teaching health. Prerequisite: Biology 1-2. (Spring—evening.)

141 *Tests and Measurements in Physical Education* (3) Krupa

Critical survey of tests in physical activities, methods of test construction, elementary statistics. (Fall—day.)

142 *Camp Leadership* (1 to 2) Snodgrass

Philosophy and techniques of camp counseling; survey of organization and programs including outdoor education. Also open to both men and women not majoring in Physical Education. (Spring—day.)

136 *Survey of Dance History and Dance Forms* (3) Burtner

The development of dance from primitive ritual to present day recreational and art forms of the dance. Includes ethnologic dance, practice and discussion of fundamental movement techniques, and composition. (1965-66 and alternate years.)

138 *Organization and Administration of Physical Education* (3) Krupa

Organization and administration of physical education programs in elementary and secondary schools and in colleges. Study of plants, fields, equipment, and programs. (Spring—evening.)

51-52 *Recreational Leadership Activities* (3-3) Abernethy

Fall semester: basic skills for the preschool and school-age child. Laboratory practice in crafts, music, dramatics, physical and social activities. Spring semester: basic skills for the teen-age and adult. Arts and crafts, dramatics, physical and social activities. (1965-66 and alternate years.)

158 *Safety Education: Care and Responsibility for Athletic Injuries* (3) DeAngelis

Liability, prevention, and emergency care of all types of injuries with reference to first aid, civil defense, and athletics. Safety education, with emphasis on proper use of personnel, facilities, and equipment. Laboratory experience with physiotherapy equipment. Prerequisite: Biology 1-2. (Spring—day.)

* The Physical Education fee is required for registration in one or more of the activity courses.

- 161 *Community Organization for Recreation* (3) Thompson
Resources, principles, and methods in organizing community recreation services.
(1964-65 and alternate years; fall—evening.)
- 162 *Administration of Community Recreation Programs* (3) Thompson
Factors and problems in administering recreation including survey, legislation, program, area, facilities, leadership, finance, and public relations. (1964-65 and alternate years; spring—evening.)

THIRD GROUP

- 211 *Problems in Physical Education* (3)
For experienced teachers. Organization, supervision, and curriculum problems arising out of current issues; program planning policies; competition. (1964-65 and alternate years; fall—evening.)
- 220 *Problems in Health Education* (3)
Health needs, policies and program planning, use of community resources, program practices in the field. (1964-65 and alternate years; spring—evening.)
- 231 *Evaluation in Physical Education* (3)
Planning the evaluation program, review of outcomes, analysis of tests and studies, administration and interpretation of tests, guidance. (1965-66 and alternate years.)
- 240 *Physical Education for the Atypical* (3)
Adaptations of activities to meet the special needs of students with physical disabilities resulting from such conditions as postural deviations, cardiac irregularities, epilepsy, and poliomyelitis. (1965-66 and alternate years.)

Physical Education for Women*

Professors Helen Lawrence, Elizabeth Burtner

Associate Professors Loretta Stallings† (Chairman), Lyndale George‡

Associate Professorial Lecturer W. D. Thompson

Assistant Professors Jeanne Snodgrass (Acting Chairman), Jeanette Clapp

Lecturer Pat Abernethy

Instructors Donna Abloy, Kathleen Mason, Mahel McEwan, Nan Smith

Two years of Physical Education (Physical Education 1-2 and 11-12) are required of all women for graduation, except students exempt under regulations stated on basis of (1) the fall medical and physical examination, is given each student for the purpose of discovering individual needs. Those students whose examinations indicate the desirability of remedial or restricted activity are assigned to a program especially adapted to their needs. This limited program includes moderate sports and individual exercises in small groups under careful supervision.

* The University is not responsible for injuries sustained by students as a result of participation in one of the courses of the Department of Physical Education, and the student assumes the responsibility.

† On Staff of Lecturers for the summer year, 1963-64.

‡ On permanent leave, 1963-64.

§ On leave of absence, 1963-64.

1. required costume for Physical Education classes may be purchased at the University Book Store.

Bachelor of Science in Physical Education—Prerequisite: the Physical Education for Women curriculum, page 73. The requirements for the degree are stated on pages 143-144.

Within the curriculum leading to the degree of Bachelor of Science in Physical Education there is opportunity for specializing in dance, recreatives, or recreation.

Bachelor of Arts in Education with (1) a major in secondary education combined with some teaching field in Physical Education, and (2) a minor in elementary education, or an area of specialization in Physical Education, see the School of Education Catalog.

Bachelor of Arts in Education with a field in Physical Education—See pages 146-50.

FIRST GROUP

1 Freshman Physical Education (1-1)

The Staff

One period of fundamentals of health and physical education and two periods a week chosen from the activities offered each semester.

Fundamentals of physical education; study of the factors involved in the general maintenance of health; elements of the body, and fundamentals of movement.

Activities: badminton, basketball, body mechanics, field hockey, recreational dance, tennis, swimming, modern dance, skating, swimming, synchronized swimming, tennis, golf, etc. (Academic year—day.) Physical Education fee*, \$4.50 a semester.

12 Sophomore Physical Education (1-1)

The Staff

Two periods a week chosen from the activities offered each semester as listed under Physical Education 1-2. Physical Education fee*, \$4.50 a semester. (Academic year—day.)

3-44 Techniques of Physical Education Motor Activities (2 to 3-2 to 3)

The Staff

Fundamental skills, rules, and organization. Physical Education fee*, \$4.50 a semester. (Academic year—as arranged.)

5 Human Anatomy (3)

Stallings

The structure of the human body. Basic course for physical education majors. Also open to both men and women not majoring in Physical Education. Prerequisite: Biology 1-2. (Fall—day.)

6 Kinesiology (3)

Lawrence

A study of the anatomical mechanism of movement, analysis of the action of muscles in physical education activities. Prerequisite: an approved course in anatomy. (Spring—day.)

7-12 Teaching Physical Education Activities (2 to 3-2 to 3)

The Staff

Team sports: basketball, hockey, softball, soccer, speedball. Individual and dual sports: tennis, badminton, archery, swimming and diving, lifesaving and water safety. Gymnastics: tumbling, apparatus and trampoline. Physical Education fee*, \$4.50 a semester. (1965-66 and alternate years.)

SECOND GROUP

101 Physical Education in the Elementary School (3)

Burtner, Snodgrass

Physical growth and development of the child and adolescent. Survey of age characteristics and organization of physical education activities for the various age levels in elementary school, playground, and settlement house programs. Methods and materials of tumbling, games, dance, self-testing activities, and body mechanics. (Fall—day) (Spring—evening, summer 1964.)

* The Physical Education fee is required for registration in one or more of the activity courses.

- 103 *History and Principles of Physical Education* (3) Stallings, Myers
Survey of history as it relates to contemporary physical education. Study of aims, objectives, and philosophy of physical education. (Fall—day.)
- 105 *Adapted Physical Education and Physical Examinations* (3-3) Lawrence
Cause and correction of faulty body mechanics, physical examination methods for the diagnosis of postural defects, prescription of exercises, and program adaptation. Prerequisite: Physical Education 49 and 50. (Academic year—day.)
- 107 *Teaching Recreational Dance* (1 to 2) Burtner, Mason
Methods and materials for teaching the country and social dances of America and the folk dances of other countries to secondary school age and adult groups. Square dancing calling is included. Physical Education fee*, \$4.50. (Fall—day.)
- 111-12 *Teaching Physical Education Activities* (2-2) The Staff
Continuation of methods and materials in activities listed under Physical Education 51-52. Physical Education fee*, \$4.50 a semester. (1964-65 and alternate years: academic year—day.)
- 113-14 *Practice in Teaching Physical Education Activities* The Staff
(2 to 4-2 to 4)
Principles and methods applied to learning and teaching physical education activities. Supervised laboratory. Physical Education fee*, \$4.50 a semester. (Academic year—day.)
- 117 *Teaching Modern Dance* (1 to 2) Burtner
Techniques for the teaching of movement as a medium of expression. Practical work in body technique, composition, and the analysis of accompaniment for dance including instrumental, voice, and percussion. Application is made to both secondary school and adult age levels. Physical Education fee*, \$4.50. (1964-65 and alternate years: fall—day.)
- 118 *Dance Production* (1 to 2) Burtner
Planning and staging of performances for demonstrations, dance concerts, and folk festivals. Lighting, costuming, sets, and make up. Choreography for concerts, musicals, and plays for students taking course for two credits. Physical Education fee*, \$4.50. (1964-65 and alternate years: spring—day.)
- 121 *School and Community Health Programs* (3) Krupa
Health services, healthful environment, health instruction, sources of material for general health knowledge. Prerequisite: Biology 1-2. (Fall—evening.)
- 122 *Methods and Materials for Health Education* (3) Stallings
Methods and materials for teaching health. Prerequisite: Biology 1-2. (Spring—evening.)
- 131 *Tests and Measurements in Physical Education* (3) Krupa
Critical survey of tests in physical activities, methods of test construction, elementary statistics. (Fall—day.)
- 132 *Camp Leadership* (1 to 2) Snodgrass
Philosophy and techniques of camp counseling; survey of organization and program including outdoor education. Also open to both men and women not majoring in Physical Education. (Spring—day.)
- 136 *Survey of Dance History and Dance Forms* (3) Burtner
The development of dance from primitive ritual to present day recreational and artistic forms of the dance. Includes ethnologic dance, practice and discussion of fundamental movement techniques, and composition. (1965-66 and alternate years.)

* The Physical Education fee is required for registration in one or more of the activity courses.

- 138 *Organization and Administration of Physical Education* (3) Krupa, George
Organization and administration of physical education programs in elementary and secondary schools and in colleges. Study of plants, fields, equipment, and programs. (Spring—as arranged.)
- 151-52 *Recreational Leadership Activities* (3-3) Abernethy
Fall semester: basic skills for the preschool and school-age child. Laboratory practice in crafts, music, dramatics, physical and social activities. Spring semester: basic skills for the teen-age and adult. Arts and crafts, dramatics, physical and social activities. (1965-66 and alternate years.)
- 178 *Safety Education: Care and Responsibility for Athletic Injuries* (3) DeAngelis
Liability, prevention, and emergency care of all types of injuries with reference to first aid, civil defense, and athletics. Safety education, with emphasis on proper use of personnel, facilities, and equipment. Laboratory experience with physiotherapy equipment. Prerequisite: Biology 1-2. (Spring—day.)
- 161 *Community Organization for Recreation* (3) Thompson
Resources, principles, and methods in organizing community recreation services. (1964-65 and alternate years: fall—evening.)
- 162 *Administration of Community Recreation Programs* (3) Thompson
Factors and problems in administering recreation including surveys, legislation, program, area, facilities, leadership, finance, and public relations. (1964-65 and alternate years: spring—evening.)

THIRD GROUP

- 211 *Problems in Physical Education* (3)
For experienced teachers. Organization, supervision, and curriculum problems growing out of current issues; program planning policies; competition. (1964-65 and alternate years: fall—evening.)
- 220 *Problems in Health Education* (3)
Health needs, policies and program planning, use of community resources, promising practices in the field. (1964-65 and alternate years: spring—evening.)
- 231 *Evaluation in Physical Education* (3)
Planning the evaluation program, review of outcomes, analysis of tests and standards, administration and interpretation of tests, guidance. (1965-66 and alternate years.)
- 240 *Physical Education for the Atypical* (3)
Adaptations of activities to meet the special needs of students with physical disabilities resulting from such conditions as postural deviations, cardiac irregularities, operations, and poliomyelitis. (1965-66 and alternate years.)

Physical Medicine and Rehabilitation*

Professor C. S. Wise (Chairman)

Associate Professor John Watt, Jr.

Assistant Clinical Professors P. A. Klieger, Giuseppe Balsano, Inez Hill

Associates A. B. C. Knudson, F. L. Wenger

150 Elements of Physical Medicine

In arrangement with the Anatomy Department, lectures and demonstrations of the various tests and measurements are employed in the evaluation of physical disability (Spring—as arranged.) The Staff

152 Advanced Physical Medicine

Lectures and demonstrations concerning the various techniques, clinical applications of physical medicine and rehabilitation to be integrated with the teaching of the associated medical and surgical specialties. (Spring—1 hour a week.) The Staff

167-68 Clinical Studies (elective)

Clinical teaching and demonstration at the University Hospital (Academic year—as arranged.) The Staff

485 Research (arr.)

Open to medical students and qualified nonmedical students (Fall—as arranged.) The Staff

Physics*

Professors G. M. Koell, Herbert Jöhle

Associate Professors H. H. Hollis (Chairman), A. L. Zischall, Otto Bergmann

Associate Professorial Lecturers H. H. Landau, Jr., Herbert Rahn

Assistant Professors S. S. Yonville, Jr., Margaret Monicka, J. M. Harrison, Sven Eriksson

Lecturers J. N. Tevis, K. F. Carlson, W. J. Condit, Jr.

Instructor N. K. Khatcherevian

Bachelor of Arts or Bachelor of Science in Physics (Departmental)—Prerequisite: one year of Letters or the Science curriculum, respectively, pages 70-71, including Physics 14, 14-32, 51-52 (or former 14, 12, 13, 161 or 11, 14, 15, 161; Chemistry 21; Mathematics 21, 22, 23, and 24 (or former 29, 30, and 31)).

Required for the Bachelor of Arts degree and the Bachelor of Science degree (see also requirements, pages 26-30), including Physics 161, 162, 163, 164, 165-66, 167, and 168, six hours in Mathematics selected from the following: Mathematics 124, 134, 135, 136, 137, 141, or 167.

* The Staff of Instruction is for the academic year 1957-58.

Master of Arts or Master of Science in the field of Physics.—Prerequisite: the degree of Bachelor of Arts or Bachelor of Science, respectively, with a major in Physics at this University, or the equivalent.

Required: the general requirements, pages 83-85, including Physics 331, 332, 233-34, 35, 236, 291-92, plus one of the following: 241, 242, 243, 244, 245, or 251-52.

Master of Philosophy.—See pages 87-95.

Bachelor of Arts in Education with a teaching field in Physics.—Prerequisite: the Education curriculum, page 72.

Required: the physics option and the professional courses listed in the School of Education Catalogue.

FIRST GROUP

1-2 General Physics (4-4)

The Staff

Lecture (2 hours), recitation (1 hour), laboratory (2½ hours). Principal phenomena of classical and modern physics. *First half:* a study in depth of selected topics in classical physics which form a foundation for and lead to an understanding of modern physics. *Second half:* the fundamental concepts of atomic, nuclear, solid state, and related fields of modern physics. Prerequisite: two years of college preparatory mathematics or concurrent registration in Mathematics 6. Material fee, \$11 a semester. *First half:* fall—day and evening; spring—day. *Second half:* spring—day and evening.

1 Introductory Physics (3)

Kochl and Staff

An introduction to the phenomena of light, heat, force, energy; vectors, the properties of matter. This course may be taken as a terminal course by non-science students who wish an introduction to the physical sciences. Prerequisite: high school algebra and plane geometry. Material fee, \$11. (Offered last time—summer 1964.)

2 Introductory Physics (3)

Harrison and Staff

Mechanics, wave motion, and sound. Prerequisite: Physics 11. Material fee, \$11. (Offered last time—summer 1964.)

1 Introductory Physics (3)

Harrison and Staff

Lecture (1 hour), recitation (1 hour), laboratory (2½ hours). Elementary electricity and magnetism. Prerequisite: Physics 11. Material fee, \$11. (Summer 1964. Offered last time: fall 1964—day and evening.)

2 General Physics (3)

Hobbs and Staff

Lecture (1 hour), recitation (1 hour), laboratory and conference (2¼ hours). Electricity and magnetism. Prerequisite: Physics 14, Mathematics 22 (or former 80), Material fee, \$11. (Offered last time: fall 1964—day and evening.)

2 General Physics (3)

Hobbs

Lecture (2 hours), conference (1 hour). Modern physics, molecular structure of matter, structure of the atom. Prerequisite: Physics 13 or 15, Mathematics 22 (or former 80), and consent of the instructor. (Offered last time: spring 1965—day and evening.)

1-2 Introduction to Theoretical Physics (2-2)

The Staff

Mechanics, fluid flow, electromagnetic fields, and vibrations, with an introduction to the development of theoretical techniques. Prerequisite: one year of calculus and Physics 1-2. (First offered 1965-66.)

1-2 Introduction to Experimental Physics (2-2)

The Staff

Experiments and lectures on the basic phenomena of physics and techniques of experimental measurement and interpretation of data. The following areas are covered: statistical mechanics, data, electricity and magnetism, electronics, optics, heat, and modern physics. This course is designed to show the phenomena that are the basis of the theoretical treatment of physics and to introduce the student to experimental techniques necessary for further work in natural sciences. Prerequisite: Physics 1-2. Material fee, \$11 a semester. (First offered 1965-66.)

SECOND GROUP*

105 *Principles of Electricity* (3)

Elementary d-c and a-c circuit theory, electric and magnetic fields, dielectric and magnetic materials, motion of charged particles in electric and magnetic fields. Prerequisite: Physics 16, Mathematics 24 (or former 31). (Offered last time: fall 1964—day.)

The Staff

113 *Atomic Physics* (3)

Properties of elementary particles, interactions with radiation, atomic structure, optical and X-ray spectra, introduction to wave mechanics. Prerequisite: Physics 16, 101, or 105, or the equivalent, Mathematics 24 (or former 31). (Offered last time: fall 1964—evening.)

Bergmann

114 *Statistical Physics* (3)

Classical and quantum statistics with emphasis on Maxwell Boltzmann statistics; applications to kinetic theory of gases, gaseous diffusion, specific heats of gases and solids. Prerequisite: Physics 16, Mathematics 24 (or former 31), and permission of the instructor. (Offered last time: spring 1965—evening.)

Jehle

116 *Quantum and Solid State Physics* (3)

Primarily for engineers. Prerequisite: Physics 16, Mathematics 111. (Offered last time: spring 1965—evening.)

Hobbs

118 *Introduction to Solid State Physics* (3)

Dielectric and magnetic properties of solids, electron theory of metals, semi-conductors, dislocations, and plastic flow. Prerequisite: Physics 113. (Summer 1964.)

Rabin

151-52 *Intermediate Laboratory* (2-2)

Independent work of an advanced nature designed to introduce the student to laboratory and shop techniques and the use of specialized instruments. Prerequisite: Physics 51-52. Material fee, \$11 a semester. (First offered 1965-66.)

The Staff

153 *Advanced Laboratory in Atomic Physics* (3)

Prerequisite: Physics 16. Material fee, \$11. (Spring: Saturday—as arranged.)

Hobbs

161 *Mechanics I* (3)

Mechanics of mass points and rigid bodies. Newton's Laws, conservation laws, Euler's equations, inertia tensor, small vibrations, and elements of Lagrange's and Hamilton's equations. (Fall—day and evening.)

The Staff

162 *Mechanics II* (3)

Basic aspects of elasticity and fluid dynamics, strain tensor, stress tensor, equations of equilibrium, elastic waves, ideal and viscous fluids. (Spring—day and evening.)

The Staff

163 *Optics* (3)

Oscillations and waves, energy and momentum of the electromagnetic field, interference, diffraction, geometrical optics, optics of crystals and other media, dispersion. (1964-65 and alternate years: fall—day; 1965-66 and alternate years: fall—evening.)

The Staff

164 *Thermodynamics* (3)

Basic principles of thermodynamics, reversible changes, applications to simple systems, thermodynamic potentials, phase equilibrium. (1964-65 and alternate years: spring—day; 1965-66 and alternate years: spring—evening.)

The Staff

165-66 *Electromagnetic Theory* (3-3)

Development of Maxwell's field equations using vector and tensor calculus, electrostatic special functions, stationary and nonstationary phenomena, basic circuit theory, electromagnetic waves and radiation, relativistic effects, microscopic basis of the macroscopic theory. (First offered 1965-66.)

The Staff

167-68 *Modern Physics* (3-3)

The experimental basis of modern physics and an introduction to quantum mechanics. The experimental basis of modern physics and an introduction to quantum mechanics.

The Staff

* Physics 1-2, 31-32 (or the equivalent), and the consent of a departmental adviser are prerequisites to all second-group courses.

and statistical mechanics with applications to atomic and nuclear physics. (First offered 1965-66.)

171 *Elementary Solid State Physics* (3) The Staff
Dielectric and magnetic properties of solids, behavior of electrons in metals and semiconductors, lattice defects. (Spring—evening.)

172 *Biophysics* (3) Yeandle
Molecular basis of biophysics, biosynthesis and reproduction. (Fall—evening.)

173 *Nuclear Reactors* (3) Landon
Neutron physics: sources of neutrons, neutron reactions, slowing down and diffusion; introduction to transport theory; fission processes; reactor types; basic theory of homogeneous and heterogeneous reactors, including specific numerical studies. (Fall—evening.)

THIRD GROUP*

231 *Electromagnetic Theory: Macroscopic Effects* (3) The Staff
An advanced presentation of those aspects of electromagnetism having to do with fields in the vacuum and in media, their determination in terms of physical boundary conditions and their effects upon charges and matter; definition of the field quantities, the experimental field relations, solutions for the fields, the effects of dielectrics and magnetic media, time dependent solutions, and basic aspects of optics. (Fall—evening.)

232 *Advanced Mechanics* (3) The Staff
The analytic methods of mechanics, which form a basis for modern theory: variational principles, Lagrange's equations, the Hamiltonian formulation, canonical transformations, classical perturbation theory, the transition to the continuum. (Spring—evening.)

233-34 *Quantum Mechanics* (3-3) The Staff
The general aspects of quantum mechanics with emphasis upon the developmental principles involved rather than specific applications. Operators and linear algebra, representations and transformation theory, Schrödinger and Heisenberg pictures and their equivalence, eigenstates of the energy, momentum, angular momentum, Pauli theory of the spin, the semiclassical limit, perturbation theory, scattering theory, and the time development operator. (Academic year—evening.)

235 *Special Relativity* (3) The Staff
The application of relativistic concepts to the basic fields of physics: space and time, mechanics of point particles, tensors and covariant mechanics of point particles, covariant form of electromagnetism and its connection to Maxwell's equations, relativistic variational principles and conservation laws, relativistic Schrödinger equation, the Dirac equation, and the hydrogen atom. (Fall—evening.)

236 *Electromagnetic Theory: Electrodynamics and Radiative Effects* (3) The Staff
Advanced potentials, Liénard-Wiechert potentials, radiation from moving charges, multipole fields, covariant methods, the self field problem, and Dirac's classical radiation theory. (Spring—evening.)

241 *Statistical Mechanics* (3) Jchle
An advanced analysis of atomic configurations under thermodynamic conditions using partition functions and cluster expansion techniques. Ideal gases and nonideal gases, electron plasmas, and the liquid state are considered. (Fall—evening.)

242 *Atomic and Molecular Structure* (3) Jchle
The structure of atoms and collections of atoms, the energy levels, binding energy, dipole moments, and optical activity. Hartree and Hartree-Fock equations, spin effects,

* Consent of a departmental graduate adviser is required for admission to all third group courses.

molecular orbitals, rotational and vibrational effects, paramagnetic resonance, chemical binding. (Spring—evening.)

243 Solid State Physics: Structure and Binding (3)

The atomic structure of solids and analysis of the binding of crystals. Crystalline forms and symmetries, atomic vibrations and specific heats, sound and optical propagation, the Mossbauer effect, crystalline defects, binding in the passage from ionic crystals to metals, the Wigner-Seitz calculation. (First offered 1965-66.)

244 Solid State Physics: Electronic Processes in Metals (3)

The phenomena in metals and semiconductors determined by the electronic states at low energy: banding, specific heats, magnetic properties, transport phenomena. The effects are handled primarily from the independent particle approximation and many body aspects are discussed. (Spring—evening.)

245 Quantum Electrodynamics: Theory and Applications (3)

A noncovariant presentation of the lower order effects depending upon the quantum nature of the electromagnetic field: Hamiltonian formulation and field quantization, perturbation calculations, Compton effect, photoelectric effect, electron-electron scattering, pair creation and annihilation, indices of refraction, divergence difficulties. The physical content of the theory and the problems of computation are presented as a preparation for the more formal nature of the advanced approaches. (Fall—evening.)

246 Quantum Field Theory (3)

A covariant presentation of the general theory of quantized fields, Boson and Fermion fields, theory of the S-matrix, dispersion relations, and the renormalization program. (Spring—evening.)

247 Quantum Theory of Many-body Systems (3)

Modern approaches to systems of many interacting particles: Bohm-Pines theory, superconductivity, development of the effective potential, problems connected with the Fermi surface, perturbative verification of collective motions. (First offered 1965-66.)

248 Elementary Particles (3)

Scalar, vector, and spinor fields and their particle aspects, weak and strong interactions, symmetry properties, and conservation laws. (Spring—evening.)

249 Irreversible Processes (3)

Extension of thermodynamic concepts to irreversible processes. Discussion of thermodynamic forces and fluxes, and the Onsager reciprocal relations. Review of the statistical mechanical reasons for assuming the postulate of irreversible thermodynamics. (Fall—evening.)

250 Selected Topics in Modern Physics (3)

Complements the established curriculum by affording formal instruction in topics of immediate interest to the development of physics and in particular to the members of the graduate research group. (This course may be taken several times for credit with the permission of the graduate adviser.) (Spring—evening.)

251-52 Laboratory (2-2)

Individual work on special topics. Material fee, \$11 a semester. Saturdays as arranged. (Academic year)

291-92 Seminar (1-1)

Individual investigation of special problems. All students registered for a Master's degree in physics are expected to attend this seminar during residence for the degree, and to take part in its programs. Credit for participation in the seminar work is obtained during the last two semesters of residence; this credit, however, is based upon the seminar work during the entire period of residence. (Academic year—evening)

299-300 Thesis (3-3)

Physiology*

Professor C. E. Leese

Associate Professors C. S. Tidball (*Acting Chairman*), Hortense Loukes (*Research*)

Assistant Professors Barbara Alying, Marie Cassidy (*Visiting*), Quentin Hartwig,

R. L. Vick (*Visiting*)

Lecturers J. F. Hoffman, D. P. Rall, R. J. Podolsky, P. G. Nelson

Associates W. A. Hagins, J. B. Black, C. M. Armstrong, M. B. Berg, Eric Freig, Jo-

seph Gilmore, E. S. Henderson, Eugene Jacobson, Lawrence Rabinowitz, G. T.

Ross, R. D. Utiger, Edward Miner, Richard Moore, Y. G. Jacobson, F. E. Bonn

Special Lecturers S. J. Sarnoff, J. H. U. Brown

Master of Arts or Master of Science in the field of Physiology—Undergraduate work should include chemistry and physics. It should be supplemented by further courses in mathematics and science such as calculus, physical and organic chemistry.

Requisite: the general requirements, pages 13-15. In addition to the above, the thirty hours of required work should include Physiology 221 or 222, 232, and at least three semester hours of research (Physiology 295 or 296).

Master of Philosophy.—See pages 87-95.

115 *Introduction to Human Physiology* (3) Leese
Lectures on the fundamentals of physiology in its various subdivisions. *Prerequisite:* one year of natural science or one semester of biological science. (Fall—TTh 8-9:15 am.)

120 *Psycho-Physiology* (2) Leese
Lectures on the processes and expression of personality, with emphasis on the physiological approach. *Prerequisite:* Physiology 115 or the equivalent and general psychology. (Spring—TTh 5:10 pm.)

150 *Medical Physiology* The Staff
Lecture and laboratory work in all divisions of physiology. This course is designed for medical students. (Spring—lecture 6 hours a week, conference 2 hours a week, laboratory 6 hours a week.)

211-12 *Problems in Physiology* (arr.) The Staff
Directed study under the supervision of a staff member. *Prerequisite:* Physiology 131, 150, or 232, and the consent of the instructor. (Academic year—as arranged.)

221 *Physiology Seminar* (1-1) Loukes
Prerequisite: Physiology 130 or 232, and a reading knowledge of French or German. (Academic year—as arranged.)

242 *Advanced Mammalian Physiology* (10) The Staff
Lecture 6 hours a week, conference 2 hours a week, laboratory 6 hours a week. *Prerequisite:* Chemistry 11-12, Mathematics 21, Physics 1-2 or former 11, 12, or the equivalent. It is recommended that Biochemistry 221-222 be taken as a prerequisite or concurrently. (Spring—MTWTF 1-5 pm.)

253 *Electronic Instrumentation* (2) Alying
Lecture 1 hour a week, laboratory 3 hours a week. Fundamentals of electronics and their application to measurement of physiological phenomena. *Prerequisite:* Mathematics 22, Physics 13, and the consent of the instructor. (1964-65 and every fourth year—fall—Th 1-5 pm.)

* The Staff of Instruction is for the academic year 1963-64.

259 *Comparative Physiology* (2)

Lectures and seminars on topics of current interest in comparative physiology, with emphasis on nonmammalian forms. Prerequisite: Physiology 150 or 232, or Zoology 162; and the consent of the instructor. (1965-66 and every fourth year: fall—as arranged.)

The Staff

265 *Physiology of Cell Membranes* (2)

Lectures and seminars on ionic and molecular transport through biological membranes. Prerequisite: Chemistry 111-12, or Physics 172; and Physiology 150 or 232, or Botany 135-36; and the consent of the instructor. (1966-67 and every fourth year: fall—as arranged.)

The Staff

281 *Biophysics* (2)

Lectures and seminars on biological topics which require development along physical lines. Prerequisite: Chemistry 111-12 or Physics 172 and the consent of the instructor. (1967-68 and every fourth year: fall—as arranged.)

The Staff

295-96 *Research* (arr.)

Prerequisite: Physiology 150 or 232, or the equivalent. (Academic year—as arranged.)

The Staff

299-300 *Thesis* (3-3)

The Staff

Political Science*

Professors W. R. West (*Emeritus*), J. W. Brewster, W. H. Kraus, K. L. London, R. E. Purcell (*Visiting*), H. M. Stout, Franz Michael (*Visiting*)

Professorial Lecturers F. M. Kiddick, F. L. Hadsel, Herbert Block

Associate Professors H. L. LeBlanc (*Chairman*), Benjamin Nimer, H. R. Luddent, R. S. Jordan

Associate Professorial Lecturers H. M. Bain, Jr., J. P. McKnight

Lecturer C. H. Slayman, Jr.

Bachelor of Arts with a major in Political Science (Departmental).—Prerequisite: the Arts and Letters curriculum, page 70, including Political Science 9-10.

Required: in addition to the general requirements, pages 76-80, thirty semester hours from the following groups distributed as follows: twelve hours from Group A; six hours from Group B; six hours from Group C; and six additional hours from any group or groups. The student will normally complete all six hours of any full-year course which he selects.

Group A: Political Science 111, 112, 117-18, 121-22. Group B: Political Science 101, 113, 119, 120, 144, 155-58, 167, 177-78, 187-88, 190, 191, 192, 193, 194, 199.

American Thought and Civilization 101 *American Civilization* is recommended as a senior-year elective for Political Science majors.

Bachelor of Arts with a major in Latin American Civilization (Field-of-Study).—See the Department of History.

Master of Arts in the field of Political Science.—Prerequisite: a Bachelor of Arts degree.

* The Staff of Instruction is for the academic year 1963-64.

† On sabbatical leave spring semester 1963-64.

‡ On leave of absence 1963-64.

agree with a major in Political Science at this University (or the equivalent major elsewhere) with a B average (or better) in the major.

Required: the general requirements, pages 83-85. The thirty hours of required work must be approved in advance by the Adviser.

Master of Arts in the field of Latin American Civilization.—See the Department of History.

Doctor of Philosophy.—See pages 87-95.

Bachelor of Arts in Government or Master of Arts in Government in the fields of International Affairs or Public Affairs.—See pages 74, 159-61, 161-63, 166-70, 170-71, 171-72.

FIRST GROUP

- 1 *Introduction to Government* (3) The Staff
Basic principles and problems of political life: theories, forms, and processes of government in the United States and foreign countries. Attention is also given to international relations. (Fall—evening; spring—day; summer 1964.)
- 2 *The Far East in the Modern World* (3) Michael
The general character of Far Eastern societies and their response to the impact of American, European, and Russian. Some attention to American policy in the Far East and the influence of world communism. (Fall—day.)
- 9-10 *Government of the United States** (3-3) The Staff
First half: structure, powers, and operation of the Federal Government: Congress, the President, and the Supreme Court; elections, political parties, and pressure groups.
Second half: state and local governments; civil rights; major functions of government at federal, state, and local levels. (First half: fall—day and evening; spring—day; summer 1964. Second half: fall—day; spring—day and evening; summer 1964.)

SECOND GROUP*

- 104 *State and Local Governments* (3) LeBlanc
State, municipal, and other local governmental forms, operations, and problems, with attention to policy formulation and administration, and to the forces of practical politics. (Spring—evening.)
- 107 *Problems in Modern Political Thought* (3) Kraus
Development of democratic political institutions and analysis of the main challenges to constitutional democracy in the 19th and 20th centuries. (Not offered 1964-65.)
- 111 *Introduction to Comparative Government and Politics* (2) Stout
Government and politics of the principal constitutional democracies of Western Europe: Great Britain and France. (Fall—day.)
- 112 *Introduction to Comparative Government and Politics* (3) Stout
Government and politics of the principal political systems of Central and Eastern Europe: Germany and the Soviet Union. (Spring—day.)
- 113 *Political Problems of the British Commonwealth of Nations* (3) Stout
From Colonial Empire to modern Commonwealth: questions of equal membership; governments and policies in the principal Commonwealth states; problems of new states in Asia and Africa. (Fall—day.)
- 117-118 *Political Theory: the Nature and Growth of Political Thought* Kraus
in the West (3-3)
First half: from Classical Antiquity to the Middle Ages; the forging of the western political tradition. Second half: from the Renaissance and Reformation to recent times. Theoretical foundations of the modern state, morals and politics, sovereignty.

* Political Science 9-10 is prerequisite to all second-group courses.

- absolutism, and resistance; liberalism, democracy, and conservatism. (Academic year—evening.)
- 119-20 *Foundations of American Democracy* (3-3) Morgan^{*}
Introduction to political thought in the United States from colonial times to the present. (Academic year—evening; summer 1964—Political Science 119 (3).)
- 121-22 *The Constitution of the United States* (3-3) West
Judicial power of federal courts in constitutional interpretation. *First half:* emphasis on separation of powers, federal state relationships, and taxation. *Second half:* emphasis on constitutional protection of civil rights. (Academic year—evening.)
- 125 *Legislative Organizations* (3) Riddick
A study of Congress: constitutional aspects, legal analysis of make up, and political organization. Political and parliamentary procedures used in the preparation and enactment of legislation. (1965-66 and alternate years.)
- 141 *The Development of Legal Institutions* (3) Brewer
Introduction to historical jurisprudence: primary attention to the origins of the Roman Law of Continental Europe and of the Anglo-Saxon Common Law. (Fall—day.)
- 145 *Political Parties and Politics* (3) LeBlanc
Organization and operations of political parties in the United States: major and minor parties, bosses and corruption, nominations and elections, influence on President and Congress. (Fall—evening; summer 1964.)
- 146 *Political Pressures and Public Reactions* (3)
Public opinion, special interest lobbies, and pressure groups as they operate on government to influence public policy. (Spring—evening.)
- 151-52 *Public Administration* (3-3)
Introductory survey of the theory and practice of governmental administration and its relation to politics, legislation, the courts, and nongovernmental organizations and interests. (Academic year—evening.)
- 157-58 *Current Problems in Domestic Politics* (1-1) Slavman
Analysis of outstanding contemporary issues in internal American politics with discussion of problems and policies. (Academic year—evening.)
- 167 *Foreign Policy of the United States* (3) Reich^{*}
The study of the constitutional and political factors that determine the formulation and execution of the foreign policy of the United States. (Fall—day.)
- 171 *International Politics* (3) Purcell, Nunn
Basic forces underlying the conduct of international relations and the formation of foreign policy: power politics, imperialism, collective security, and international cooperation. (Fall—day and evening; summer 1964.)
- 172 *Organization and Function of the United Nations* (3) Purcell
(Formerly *International Organization: the United Nations*)
Development and current operation of international organization within the system of sovereign states with emphasis on the United Nations. (Spring—day and evening; summer 1964.)
- 177 *Recent Trends in Latin American Politics and Government* (3) Davis
Types of government, recent developments, and current political conditions in each of the twenty Latin American republics. (Fall—day; summer 1964.)
- 178 *International Politics in the Western Hemisphere* (3) Davis
Political relations of the American Republics in the 19th and 20th centuries, the development of Pan Americanism and the Organization of American States. (Spring—day.)

* Appointment effective September 1964

- 181-82 *Survey of Public International Law and Organization* (3-3) Brewer
(Formerly International Law)
Survey of the public law of nations with emphasis on the law of peace. Neutrality and the so-called law of war receive attention in the second semester. (Academic year—day and evening.)
- 187-83 *Current Problems in International Politics* (1-1) Slayman
Analysis of outstanding contemporary international issues with discussion of problems and policies. (Academic year—evening.)
- 190 *Politics of Middle and Southern Africa* (3) Nimer
(Political Science 190, 191, and 192 replace former 191 and 192)
The political life of the states and dependent territories of non-Mediterranean Africa, including the upper Nile valley and the Horn of Africa. Special attention to the specifically regional aspect of the foreign policies of these countries. (Fall—day.)
- 191 *Governments and Politics of the Middle East* (3) Reich*
(Political Science 190, 191, and 192 replace former 191 and 192)
Domestic and international politics of the Eastern Arab States and Principalities, Turkey, Iran, and Israel. Attention will be given to their roles in regional and international organizations. (Fall—day.)
- 192 *Governments and Politics of North Africa* (3) Reich*
(Political Science 190, 191, and 192 replace former 191 and 192)
Domestic and international politics of Algeria, Tunisia, Morocco, Libya, Egypt, and Sudan. Attention will be given to their relations with the states of the Middle East. (Spring—day.)
- 193 *Governments and Politics of South and Southeast Asia* (3)
(Political Science 193 and 194 replace former 194)
Domestic and international politics of the major states in the area with particular reference to India. (Not offered 1964-65.)
- 194 *Governments of China and Japan* (3) Michael
(Political Science 193 and 194 replace former 194)
Institutions and processes of government of contemporary China and Japan, with some historical background. Special attention will be paid to ideological forces. (Spring—day.)
- 197 *Proseminar in International Affairs: Strategies of Contemporary American Foreign Policy* (3) Nimer
Analysis of diplomatic, economic, psychological, and military problems of United States foreign policy. Readings, term papers, and discussion. Primarily for seniors in the International Affairs curriculum; open to a limited number of other qualified students. (Fall—evening; spring—day.)
- 199 *American Government and Politics* (3) LeBlanc
Reading and research as a basis for analyzing significant problems of American government and politics. Open to senior students in the Public Affairs and Political Science curricula. (Not offered 1964-65.)

THIRD GROUP

- 203-4 *State and Local Governments* (3-3)
First half: readings and group discussions on the process of politics at the state and local level. Second half: advanced research in selected topics of state and local politics. (Academic year—evening.)
- 209-10 *Seminar: the Federal Government of the United States* (3-3) West
Advanced research including the legislative problems of Congress; relations of Congress and the Executive. (Not offered 1964-65.)

* Appointment effective September 1964

gress with the Administration; constitutional and political powers of the President, the Cabinet, and the Executive Office of the President; the practical politics of the presidency; and presidential policy leadership and control. (Academic year—evening.)

211 Readings in Comparative Government and Politics (3)
(Formerly Political Science 213)

Kraus

Readings and group discussions on methodological questions, comparative political and administrative institutions with attention to legislatures, the changing role of the executive, political parties, constitutional and totalitarian approaches to public management and public service, the role of the military, etc. (Fall—evening.)

212 Seminar: Comparative Government and Politics (3)

Stout

Selected topics and problems on comparative political and administrative institutions and the politics of modern constitutional governments and dictatorships. Each semester is devoted to a selected country or significant institutional or policy problem. Attention will be directed to questions of method. (Spring—evening.)

217 Seminar: Topics in Political Theory (3)

Kraus

Research and discussion on problems of modern political and constitutional theory, theoretical aspects of representative government, democracy, socialism, and totalitarianism. Each semester is devoted to a separately announced topic, such as socialism and communism, theories of resistance and revolution, problems of democratic theory. (Spring—evening.)

218 Reading Course in Political Theory (3)
(Formerly Political Science 220)

Kraus

Readings and group discussions, principally on modern political and constitutional theory since the 17th and 18th centuries. (Fall—evening.)

221-22 The United States Constitution and the Judicial Function (3-3)

Morgan

Reading and research as a basis for an analysis of constitutional politics and law-making. (Academic year—evening.)

235 Metropolitan Problems (3)

Bain

Growth of American cities and changing land use patterns in relation to internal transportation systems. The respective roles of the private automobile and of public transportation. The problems of financing and administering public transportation systems under public and private ownership. (Fall—evening.)

245-46 The American Political Process: Political Parties and Interest Groups (3-3)

LeBlanc

First half: readings and group discussions on the nature and functions of political parties and the role and techniques of political interest groups. Second half: seminar on selected topics of American politics requiring the use of basic research materials. (Academic year—evening.)

267 Seminar: Foreign Policy of the United States (3)

Purcell

Research and selected reading as the basis for an analysis of the foreign policy of the United States, with particular reference to the decision-making process and the execution of policy. (Fall—evening.)

268 Seminar: Comparative Foreign Policies (3)
(Political Science 268 replaces former 274)

Research and selected reading as the basis for an analysis of the foreign policies of major powers, with particular reference to the decision-making process and the execution of policy. (Spring—evening.)

271-72 Problems in International Organization (3-3)

Reading and research as a basis for analyzing developments in general and regional international organizations. (Academic year—evening.)

- 273 *Public Opinion and Foreign Policy* (3) Davis
Development, organization, and operation of international information programs by major world powers. Public opinion in the United States influencing the formation and conduct of foreign policy. (Fall—evening.)
- 275-76 *Problems in International Politics* (3-3) Nimer
(Political Science 275-76 replaces former 279 and 275)
First half: Readings and discussions to establish familiarity with both recent and older works of theoretical significance in the field of international politics. Second half: Examination by means of individual research and class discussion of selected international political processes. Attention to factual and value problems. (Academic year—evening.)
- 277 *Seminar: Latin American Government* (3) Davis
Analysis of the political structures of selected Latin American republics. Two comparable governments studied each year. (Fall—evening.)
- 279 *Seminar: Latin American Political Philosophy* (3) Davis
Research in political personalities and philosophies of 19th and 20th century Latin America. (Spring—evening.)
- 281-82 *Seminar: Public International Law* (3-3) Brewer
Research in the public law of nations, with special attention to problems of peace settlement, sanctions, war, neutrality, and state jurisdiction, and to their political implications. (Academic year—day.)
- 286 *Reading Course in African International Politics* (3) Nimer
Readings and discussions on selected topics in the international politics of Africa: intra-African regional relations, political unions, the African states and the extra-continental world. (Spring—evening.)
- 291 *Government and Politics of the Middle East* (3) Reich*
(Political Science 291 and 292 replace former 292)
Reading and research in selected problems in the government and politics and international relations of the Middle East. (Fall—evening.)
- 292 *Government and Politics of North Africa* (3) Reich*
(Political Science 291 and 292 replace former 292)
Reading and research in selected problems in the government and politics and international relations of North Africa. (Spring—evening.)
- 293 *Seminar: Governments and Politics of South and Southeast Asia* (3)
(Political Science 293 replaces former 293-94)
Research and selected reading as the basis for an analysis of the structure, problems, and policies of the governments of selected countries in the area with particular reference to India. (Not offered 1964-65.)
- 299-300 *Thesis* (3-3) The Staff
(Academic year—as arranged; summer 1964.)

INSTITUTE FOR SINO-SOVIET STUDIES

- 215-16 *Seminar: the Sino-Soviet Blocs in World Affairs I-II* (3-3)
- 224 *Readings in Socialism and Communism* (3)
- 225 *Seminar: Theoretical Problems of Marxism-Leninism* (3)
- 227 *Seminar: the Politics of Eastern Europe* (3)
- 230 *Seminar: Operational Techniques of International Communism* (3)
- 241 *Seminar: the Sino-Soviet Conflict* (3)
- 252 *Seminar: International Communication—the Sino-Soviet Orbit* (3)

* Appointment effective September 1964

- 233 *Seminar: Soviet Government and Politics* (3)
 234 *Seminar: Soviet Internal Policy* (3)
 237 *Chinese Law* (3)
 238 *Soviet Law* (3)
 253 *Seminar: Chinese Government and Politics* (3)
 256 *Seminar: the Politics of North Korea and North Vietnam* (3)
 264 *Seminar: Sino-Soviet Relations with South Asia* (3)
 269 *Seminar: Soviet Foreign Policy* (3)
 270 *Seminar: the Soviet Foreign Policy Process* (3)
 288 *Seminar: Soviet Military Policy and Strategy* (3)
 295 *Seminar: China in the Communist Bloc* (3)
 296 *Seminar: the Communist Bloc in Far Eastern International Politics* (3)
 298 *Seminar: Sino-Soviet Relations with Southeast Asia* (3)

COURSES OFFERED IN SPECIAL PROGRAMS

In addition to the regular courses announced above, the University offers political science courses listed below for students in the Air Force Advanced Management Program and the War College programs.

- 283 *Topics in International Law** (3)
 285 *Diplomacy since World War II** (3)
 287 *American Military Policy* (3)

Preventive Medicine and Community Health†

Professors J. F. Sadusk, Jr. (*Chairman*), R. G. Beachley (*Emeritus*)

Clinical Professor Murray Grant

Professorial Lecturer D. L. Finucane

Associate Professor C. R. Hartman

Associate Clinical Professors David Frost, G. O. Pierce, W. J. Zukel, L. C. Robbins

Assistant Clinical Professors L. A. Pyle, Jr., J. H. Vinyard, Jr.

Instructor F. J. Kessler

- 210 *Preventive Medicine and Community Health* (2)

A lecture-seminar covering fundamental aspects of preventive medicine, occupational medicine, public health, community health, and the place of the physician in his community. Current socio-economic medical problems will be discussed in preparation

* Offered in the War College programs only

† The Staff of Instruction is for the academic year 1963-64

Sadusk and Staff

for later clinical years. Open to pharmacy and graduate students. Prerequisite: Microbiology 112 or the equivalent. (Spring—M 2:00-4:00 pm.)

301 Continuing Care Program

Sadusk and Staff

Medical care program carried out with the assistance of clinical faculty members from Medicine, Obstetrics, and Surgery. Students enter the program in their junior year and are responsible, under specific preceptors, for the diagnosis and care of selected medical, obstetrical, and surgical patients in the outpatient clinic and hospital units on a long-term basis until graduation. University, Fairfax, and Washington Hospital Center hospitals. Health maintenance, development of the family doctor-patient relationship stressed; introduction to the use of community health facilities. (Fall—T or Th 8:10-12:00 am.)

302 Continuing Care Program

Sadusk and Staff

Continuation of Preventive Medicine and Community Health 301. Spring—T or Th —as arranged and required for the care of patients.)

Psychiatry*

Professors Leon Yochelson (*Chairman*), Samuel Yochelson (*Research*)

Clinical Professors J. D. Schultz, D. C. Cameron, F. A. Freyhan, D. M. Bullard, Douglas Noble

Associate Professor J. E. Rankin

Associate Clinical Professors H. P. Laughlin, M. deG. Ruffin, Sidney Berman, Morris Kleinerman, Anna Todd, Norman Taub, Leon Ferber, P. H. Gray, Paul Chodoff, I. H. Kaiser

Assistant Professors Helen Pallister, Helen Pearcey, J. G. Rubin, E. S. Fleming

Assistant Clinical Professors Sarah Tenenblatt, Richard Schaengold, David Eden, C. T. Bever, Joseph Abrahams, R. M. Greenberg, M. L. Adland, W. D. Kehne, H. A. Meyersburg, S. L. Werkman, J. B. Chossan, R. W. Goss, R. A. Rogers, J. A. Farrell, S. C. Gordon, H. B. Lehman, A. M. Drummond, N. C. Rutz, J. L. Sheridan, I. J. Dahl, F. G. Hilkert, F. N. Waldrop

Lecturer W. E. Barton

Associates W. C. Johnson, R. A. Frank, Leslie Schaffer, D. W. Harris, A. H. Kiracofe, Jr., T. M. Mackenzie, Daniel Pinner, R. N. Butler, F. I. Kushner, Jean Monettez, B. H. Sklarew, Christine Kehne, D. B. Price, M. A. Woodbury, W. H. Young, Jr.

Clinical Instructors Maxwell Boverman, J. H. Bouma, Bertram Brown, B. L. Harris, Seymour Rabinowitz, D. S. Sprague

Special Lecturers R. H. Felix, Mathew Ross

165 Introductory Medical Psychology

Berman

An orientation course in the anatomical, physiological, and psychological growth and development of personality. Consideration of characteristics of structure, function, and pathological. Evaluation of interpersonal relationships. (Spring—1 hour a week)

178 Psychopathology

Rankin

Manifestations and understanding of various mental mechanisms and abnormal reactions

* The Staff of Instruction is for the academic year 1963-64

tion-types, preceded by history of development of psychopathology and illustrated with case material. (Spring—1 hour a week.)

266 *Psychiatry*

Psychiatry in the practice of Medicine. Techniques of interviewing. (Spring—1 hour a week.)

Yochelson
(Spring—1

268 *Clinical Psychiatry*

History, etiology, symptoms, course, and treatment of the major psychoses with emphasis on the dynamics involving the person as a whole. Presentation of clinical cases of major mental illnesses and primary behavior disturbances. St. Elizabeths and D. C. General hospitals. (Spring—3 hours a week.)

Freyhan, Chodoff, and Staff

272 *Psychosomatic Aspects of General Medicine*

Somatic disorders of psychogenic origin. The role of personality reactions in functional and organic disorders. (Spring—1 hour a week.)

Ruffin

324 *Psychoneurosis*

Etiology, psychopathology, clinical aspects, and treatment of various types of psychoneuroses. Medical Conference Room, D. C. General Hospital. (Spring—1 hour a week.)

Ferber

431-32 *Clinical Clerkship*

Supervised examination, diagnosis, and treatment of ambulatory cases in University Hospital and hospitalized cases in St. Elizabeths Hospital. Conferences for discussion of cases. Clinical application of psychiatric principles to general medical practice stressed. University Hospital Inpatient and Outpatient Psychiatric clinics and St. Elizabeths Hospital. (Three weeks divided service as arranged during academic year.)

The Staff

Psychology*

Professors Thelma Hunt, J. L. Finan (Chairman), E. I. Phillips, J. N. Mosel, B. I. Levy

Professorial Lecturers Margaret Ives, R. K. White

Associate Professors C. E. Tuthill, W. E. Caldwell, R. D. Walk, Eva Johnson, C. W. Hill, Virginia Kirkbride, L. E. Schlesinger (Research)

Associate Professorial Lecturer R. K. Kahn

Assistant Professors R. E. Nohr, Ila Glent (Research), Jacqueline Goodnow (Research), R. R. Bonato (Research)

Lecturer Janet Johnson

Bachelor of Arts with a major in Psychology (Departmental). Prerequisite: the Advanced Placement course, page 70, nine semester hours in first group courses in Psychology including Psychology 5-6.

The general requirements for the degree are stated on pages 76-80. The sixty three semester hours must include twenty four hours in Psychology in addition to those taken as prerequisites, including Psychology 101, 110, 131, 151, and 196; and Statistics 53 or 104.

Master of Arts or Master of Science in the field of Psychology. Prerequisite: the degree of Bachelor of Arts with a major in Psychology at this University, or the equivalent.

Required: the general requirements, pages 81-85. Of the twenty four required semester hours (exclusive of the thesis), a minimum of eighteen must be in Psychology including Psychology 201 and 202; twelve must be in related fields approved by the Department.

* The Staff of Instruction is for the academic year 1963-64.

Master's programs are available in the following fields of concentration: (1) tests and measurements, (2) counseling, (3) clinical, (4) social, (5) personnel, (6) experimental, (7) personality, and (8) experimental comparative. For detailed requirements consult the Chairman of the Department.

Master of Arts in the field of Linguistics—See pages 321-22 and the departments of Germanic Languages and Literatures and Romance Languages and Literatures.

Master of Philosophy—See pages 87-95.

Master of Arts in Government, Master of Business Administration, or Master of Public Administration in the field of Personnel Administration—See pages 166-71, 173, 175-76, 177-78.

Master of Arts in Education in the fields of Employee Training and of Guidance—Prerequisite: a Bachelor's degree from an accredited institution and two years of successful teaching experience. See pages 143-50.

FIRST GROUP

1 *General Psychology** (3) The Staff
The fundamental principles underlying human behavior. (Fall and spring—day and evening; summer 1964.)

5-6 *Principles and Methods of Psychology** (3-3) Walk and Staff
Lecture (2 hours), laboratory (2 hours). An experimental approach to the understanding of behavior. A variety of individual and class experiments are performed. Required of all psychology majors, who should take the course early in the major. May be taken without Psychology 1. *First half:* awareness, discrimination, sensation, perception, and emotions and their relation to adaptive behavior. *Second half:* topics of motivation, learning, memory, and problem solving. (Academic year—day and evening.)

4 *Psychology of Adjustment* (3) The Staff
(Formerly Psychology 4)
Processes involved in the total adjustment of the individual with emphasis on social environment; development in the individual of adjustment techniques. (Fall and spring—day and evening; summer 1964.)

22 *Introduction to Educational Psychology* (3) J. Johnson
Consideration of individual and group differences, adjustments, and the psychology of learning in relation to education and training. (Fall—evening; spring—day; summer 1964.)

2 *Psychology of Childhood* (3) E. Johnson
A genetic approach to the study of the child. Special emphasis is placed on the socialization process, learning, and the child's view of the world. (Fall—day; spring—evening; summer 1964.)

SECOND GROUP†

101 *Abnormal Psychology* (3) Nolan, Hunt, Levy
The causes, diagnosis, treatment, and prevention of the various types of maladjustments and mental disorders. Prerequisite: 6 credits in psychology, or 3 credits in psychology and 6 credits in a biological science. (Fall—day and evening; spring—day; summer 1964.)

112 *Psychology of Adolescence* (3) E. Johnson
Psychological characteristics and problems peculiar to adolescence, with emphasis on applications of psychology to solution of such problems. (1964-65 and alternate years—full-day.)

115 *Psychology of Language and Communication* (3) Mosé
An introduction to psycholinguistics and verbal behavior. Information theory, the

* Psychology 1 or 5, 6, 8 prerequisite to all other courses in Psychology.

† Six credits in first-group courses are prerequisite to all second-group courses.

- measurement of meaning, cultural and linguistic structures in the perception and learning of language. (Fall—day.)
- 118 *Physiological Psychology* (3) Finan, Hill
Basic structure and functions of sensory systems, motor systems, central nervous system, autonomic nervous system, and endocrine system with special emphasis upon the relations between physiological functioning and behavior. (Fall—evening; spring—day.)
- 121 *Psychology of Learning* (3) Finan
(Formerly Educational Psychology)
Current learning theories and issues. (Fall—day; summer 1964.)
- 129 *Motivational Factors in Personality* (3) Kirkbride
(Formerly Introduction to Counseling)
A survey of basic principles and assessment techniques, with emphasis on applications to counseling. (Fall—evening; summer 1964.)
- 131 *Psychological Tests* (3) Hunt
A survey of psychological tests and their more common uses in business, industry, government, law, medicine, and education. Material fee, \$7. (Fall—day; spring—evening; summer 1964.)
- 144 *Personnel Psychology* (3) Mosel
Psychological concepts and techniques in personnel management and supervision. Applications to government, industry, and military organizations. (Fall and spring—evening.)
- 148 *Psychology of Advertising and Consumer Behavior* (3)
The motivational and social processes in economic behavior. Consideration of current techniques and findings in motivational research. Evaluation of the effectiveness of mass media, public relations programs, and strategies of persuasion. (1965-66 and alternate years.)
- 151 *Social Psychology* (3) Tuthill
The social foundations of attitudes and behavior. Individual adjustment to group situations, such as the family, school, fraternity, and occupation. The psychological basis of race prejudice, nationalism, and war. (Fall—evening; spring—day; summer 1964.)
- 156 *Psychology of Propaganda and Public Opinion* (3) Tuthill
The psychology of opinion formation, the measurement of opinion, the social determinants of attitudes, the psychological processes in propaganda, the bases of receptivity of propaganda, psychological warfare. (1964-65 and alternate years; spring—evening.)
- 161 *Comparative Psychology* (3) Caldwell
A lecture course in animal psychology. Covers psychological processes in invertebrate organisms, evolution of behavior, the place of animal experimentation and research in psychology. (Spring—day.)
- 191-92 *Research Problems in Psychology* (3-3) The Staff
Opportunity for work on individual projects using human or lower animal subjects. Offered on individual study plan. Open to qualified students by special permission of the instructor. (Academic year—as arranged.)
- 193-94 *Readings in Psychology* (3-3) The Staff
Supervised readings on specific topics in psychology, with conferences, for undergraduate majors. Open only to seniors with 18 or more credits in psychology with a grade point index of 3.00 or higher. Admission by special permission of the instructor. (Academic year—as arranged; summer 1964.)
- 196 *History and Systems of Psychology* (3) Caldwell and Staff
A senior capstone course which includes a survey and integration of the major viewpoints and concepts of psychology. Open to senior majors and, by special permission,

of the instructor, to other students with 12 or more credits in psychology. (Fall—day; spring—evening; summer 1964.)

- 198 *Current Research Issues in Psychology* (3) Walk
Class will be conducted as a seminar and will consider recent experiments in Psychology, including those performed by undergraduates. Emphasis is on student participation. Open only to senior psychology majors. (Spring—day.)

THIRD GROUP*

- 201 *Advanced General Psychology* (3) Hill
An integrated review of history, theory, and facts in the area of general psychology: perception, motivation, learning, and cognition. Required of all psychology Master's candidates. (Fall—day; spring—evening.)
- 202 *Psychological Research Methods and Procedures* (3) Walk
Required in all graduate programs. Prerequisites: Experimental Psychology and an elementary course in statistics. (Fall—evening; spring—day.)
- 207-8 *Readings in Psychology for Graduate Students* (3-3) The Staff
Supervised readings with conferences on specified topics in psychology. Open only to students who have had course work in the field of the readings. (Academic year—arranged; summer 1964.)
- 209 *Seminar: Psychology of Motivation* (3) Caldwell
A consideration of various theoretical approaches to the psychology of motivation and systematic concepts and experimental findings deriving from each approach. (1964-65 and alternate years: fall—evening.)
- 212 *Personality Evaluation by Projective Techniques* (3) Levy
Primary emphasis upon administration and scoring of the Rorschach Test. Prerequisite: Psychology 233. (Fall—day; spring—evening; summer 1964.)
- 213 *Clinical Psychometrics* (3) Ives
A study of the clinical applications of nonprojective tests. Prerequisite: Psychology 233. (Spring—evening.)
- 215 *Advanced Study of Projective Techniques* (3) Nolan, Ives
Primary emphasis upon interpretation of the Rorschach Test. Prerequisite: Psychology 212. (Fall—evening; spring—day.)
- 217 *Seminar: Developmental Psychology* (3) Ghent
(Fall—day.)
- 218 *Seminar: Clinical Psychology—Psychopathology* (3) Nolan
Covers basic etiological factors in behavioral and psychological deviations and disorders. (Fall—day.)
- 219 *Seminar: Clinical Psychology—Psychotherapy* (3) Nolan
Covers theoretical principles underlying psychotherapy, techniques and procedures, and problems of evaluation. (Spring—day.)
- 220 *Seminar: Abnormal Psychology* (3) Hunt
An intensive study of selected problems in the field of abnormal psychology. (Fall—day; spring—evening; summer 1964.)
- 223 *Seminar: Learning* (3) Finan
Selected topics in the psychology of learning. (Spring—evening.)
- 225 *Seminar: Mental Hygiene* (3) Phillips
A study of mental health problems with special attention to needs of counselors, teachers, and only to graduate students, except by special permission of Instructor and Chairman of the Department.

- ers, and others working with children and adolescents. (Fall—evening; spring—day; summer 1964.)
- 226 *Seminar: Clinical Psychology of Childhood and Adolescence* E. Johnson (3)
A survey of behavior and personality disorders. (Spring—evening.)
- 227 28 *Seminar: Variations in Psychotherapeutic Approach* (3-3) Kahn
A study of patient needs and demands upon the therapist. Case participation will be heavily relied upon. Open to qualified students in psychology and related fields, with permission of the instructor. (Academic year—day.)
- 231 *Test Construction* (3) Mosel
The principles underlying test construction; statistical techniques in the construction, evaluation, and standardization of psychological, educational, and vocational tests. For requisites: a course in tests and measurements and an elementary course in statistics. (1965-66 and alternate years.)
- 233 *Individual Psychological Testing* (3) E. Johnson
Instruction and practice in giving of the Binet and Wechsler tests. Prerequisite: an elementary course in tests and measurements. Material fee, \$7. (Fall and spring—day.)
- 234 *Seminar: Test Theory* (3) Mosel
Development of the axiomatic-deductive theory underlying the major notions in the construction, evaluation, and application of psychological tests. (1964-65 and alternate years; fall—evening.)
- 235 *Seminar: Psychological Measurement* (3) Hugg
Advanced instruction in the use and interpretation of psychological tests, with emphasis upon group tests; survey of recent research in psychological measurement. Prerequisite: a course in psychological or educational measurement. (1964-65 and alternate years; spring—evening.)
- 244 *Seminar: Job and Worker Analysis* (3) Mosel
An examination of the principles, techniques, and research findings in the description of work performed and in the analysis of qualifications requirements. (Summer 1964.)
- 245 *Seminar: Employee Motivation and Morale* (3) Mosel
An analysis of organizational behavior, especially with regard to motivation and productivity. The implications of recent research on employee attitudes, the primary group, the effects of various patterns of supervisory leadership, the role of formal and informal organization, and job design. (Spring—day and evening; summer 1964.)
- 246 *Seminar: Personnel Measurement Techniques* (3) Mosel
Detailed consideration of the techniques of personnel selection and performance evaluation. The use of employment tests, personal data, assessment interviews, and performance ratings. (1965-66 and alternate years.)
- 249 *Seminar: Psychological Factors in Design and Operation of Man-Machine Systems* (3) First
Includes consideration of psychotechnology versus theoretical psychology, system analysis, personnel selection and utilization, information displays and controls, training, decision making, stress and vigilance, simulation, and evaluation of system performance. Open to qualified students in psychology and engineering, with permission of the instructor. (Fall—evening.)
- 251 *Seminar: Advanced Social Psychology* (3) First
Current research and theory in social psychology; group dynamics; ego involvement; action research, and social interaction theory. (Fall—evening.)
- 254 *Seminar: Group Dynamics* (3) First
The experimental study of small groups; autocratic and democratic group climates.

interaction process analysis; Lewin's field-theoretical approach to individual and group processes. (1965-66 and alternate years.)

- 255 Seminar: *Techniques of Opinion and Attitude Measurements* (4) Tuthill
Methods of attitude measurement (interviews, questionnaires, scales, polls) as currently used by private and governmental investigators. The place of attitude studies in schools, industry, government, etc. (1964-65 and alternate years: spring-evening.)

- 257 *Theories of Organization* (3) Schlesinger
Theory and research in formal organizations. Classical, human relations, and information processing theories of organizations. The effects of organizational design on communication processes, leadership, decision-making, intergroup relations, small group formation, status hierarchies, productivity, motivation, and morale. Open to graduate students in psychology and graduate administrative programs. (1965-66 and alternate years.)

- 272 Seminar: *Theories of Personality* (3) Caldwell
A survey of the various theories of personality, with emphasis upon theoretical problems and methodology in the field of personality study. (Fall-evening; summer 1964.)

- 31-32 *Practicum in Counseling* (3-3) Phillips
Supervised practical instruction in agencies doing counseling. Prerequisites: graduate work in counseling. Admission by permission of the instructor. (Academic year—arranged; summer 1964.)

- 33-34 *Practicum in Clinical Psychology* (3-3) Levy
Supervised practical instruction in agencies doing clinical psychological work. Prerequisite: Psychology 212. Admission by permission of the instructor. (Academic year—as arranged; summer 1964.)

- 301-02 Seminar: *Current Research and Theory in Psychology* (3-3)
A review and discussion of contemporary research and theory in some advanced and selected field of psychological study, by leaders in the field. Two specific topics and instructors for each semester will be announced in advance of the beginning of the semester. (Academic year—evening; summer 1964.)

- 22 Seminar: *Perception* (3) Walk
Study of current research and theory in the experimental psychology of perception. (1964-65 and alternate years: spring-day.)

- 25-96 *Research in Psychology* (arr.) The Staff
Individual research by student, carried out under supervision of staff member. (Academic year—as arranged; summer 1964.)

- 297-98 Seminar: *Concepts of Psychology* (6-6) Finan and Staff
Lectures (3 hours), dialogue (1 hour), discussion (2 hours). An overview and analysis of the concepts and major areas of psychology. Designed as a review and integration of knowledge for the Ph.D. candidate preparing for the Comprehensive Examination in general psychology and as a preparation for specialized study and individual research. Required of all Doctoral candidates in psychology. Admission by permission of the instructor. (Academic year—day.)

- 299-300 Thesis (3-3) The Staff
(Academic year—as arranged; summer 1964.)

COURSES OFFERED IN COOPERATION WITH OTHER SCHOOLS, COLLEGES, AND DIVISIONS OF THE UNIVERSITY

In addition to the regular courses announced above the University offers the following courses in conjunction with special programs in schools, colleges, and divisions of the University other than Columbian College of Arts and Sciences.

- 145 *Principles of Human Relations* (3) (School of Engineering and Applied Science)
- 149 *Human Relations in Management* (3) (College of General Studies)
- 245 *Employee Motivation and Morale* (3) Mosel
Especially for students in the School of Government, Business, and International Affairs. (Spring—day and evening; summer 1964.)
- 259 *Seminar: Social Psychology of Communism* (3) White
Psychological aspects of authoritarian systems and of all-embracing political ideologies; methods and findings in the study of public opinion in the USSR and its satellites; problems of Western communications with the USSR; the nature of Communist propaganda and the appeals of Communism in non-Communist countries. Especially for students in the Institute for Sino-Soviet Studies. (Fall—evening.)
- 261 *Seminar: International Communication* (3) Mosel
The process of communicating information and effecting attitude change across cultures by means of mass media. Special emphasis is given to the role of psychocultural factors and the functions of mass communication in the development of transitional societies. Especially for students in the School of Government, Business, and International Affairs. (1964-65 and alternate years: spring—evening.)
- 262 *Behavioral Factors in Social Change* (3) Lippitt
Current research and theory related to the process of social change. Basic principles of planned change will be explored with individual, group, organization, community, and cultural change. Human factors in the change process will be emphasized. Especially for students in the Center for Behavioral Sciences. (Spring—evening.)
- 264 *Sensitivity Training: Human Relations Laboratory Course* (3) Lippitt
A sensitivity learning experience in human relations. The course is built around an unstructured group experience with opportunities for individual feedback, experimentation, and practice. The goal of the course is the development of self-insight, situational sensitivity, and diagnostic skills in human relations. Prerequisite: 9 semester hours in psychology or sociology. Especially for students in the Center for Behavioral Sciences. (Fall and spring—evening.)
- 265 *Theory and Design in Human Relations Training* (3) Lippitt
Designed for those interested or involved in conducting human relations training. Theories of learning are reviewed. The laboratory approach to human relations training is explored in depth. Practice in designing, developing training skills, and evaluating training. Prerequisite: Psychology 264 or a human relations laboratory learning experience. Especially for students in the Center for Behavioral Sciences. (1963-64 and alternate years.)

Radiology*

Professor W. W. Stanbro (Chairman)

Associate Clinical Professors H. J. Kicherer, Joseph LoPresti, R. F. Dobbins

Assistant Professors C. F. Murphy, W. J. Nelson

Assistant Clinical Professors Charlotte Donlan, S. R. Bersack, H. L. Berman, J. T. Brennan, Albert Bauer, Henry Harrell, A. C. Wyman, D. B. Sodec

* The Staff of Instruction is for the academic year 1963-64

Associates S. W. Smith, M. D. Faris

Clinical Instructors George Tievsky, U. V. Wilcox II, C. M. Weber, Nan Van Wageningen, Zeki Erim, M. A. Thomas

115-16 Anatomy

Correlation of gross and Roentgen anatomy. (Academic year—as arranged.)

The Staff

220 Principles of Radiology

Lectures and discussions. (Spring—1 hour a week.)

The Staff

313 Advanced Radiological Diagnosis

Lectures and discussions. (Fall—as arranged.)

The Staff

421-22 Clinical Studies

Students are assigned to the X-ray Department in rotation on a full-time basis for a specific period.

The Staff

Religion*

Professor J. R. Sizoo

Associate Professor R. G. Jones (Chairman)

Assistant Professors H. E. Yeide, Jr., D. D. Wallace, Jr.

Lecturer E. W. Seaman

Bachelor of Arts with a major in Religion (Field of Study).—Prerequisite: the Arts and Letters curriculum, page 70, including Religion 9, 10, and 59-60.

Required: the general requirements, pages 76-80, and the passing of the Religion major examination at the end of the senior year. The coordinated field of knowledge upon which the student will be examined includes the history and literature of the world's religions with special emphasis on those of the West and the philosophical and ethical problems of religious thought. A student may elect to give special emphasis in his program to Christianity or to Judaism. The Department of Religion provides a proseminar (Religion 199-200) intended to assist the student in preparing for the major examination. A pamphlet containing a detailed description of the major is available in the offices of the Dean of Columbian College of Arts and Sciences and the Chairman of the Department of Religion.

American Thought and Civilization 101 American Civilization is recommended as a senior-year elective for Religion majors.

Master of Arts in the field of Religion.—Prerequisite: an undergraduate major in Religion at this University or the equivalent.

Required: the general requirements, pages 83-85. Of the twenty-four semester hours of required courses (exclusive of the thesis), at least twelve must be in third-group religion courses; a maximum of nine may be in a closely related field outside the Department of Religion as approved by the Department.

Master of Arts in the field of Religious Education.—Prerequisite: an undergraduate major in Religion at this University or the equivalent; the following specific courses or the equivalent: Education 100, Psychology I, 22, and 29; Anthropology I; Speech I or II.

Required: the general requirements, pages 83-85. Of the twenty-four semester hours of required courses (exclusive of the thesis), at least six must be in third-group religion courses; a maximum of twelve may be in a closely related field outside the Department of Religion as approved by the Department.

Doctor of Philosophy in the field of the History of Religion in the United States.—See pages 87-95.

* The Staff of Instruction is for the academic year 1963-64.

FIRST GROUP

- 9 *The Old Testament* (3)** Jones and Staff
A historical and literary approach to the study of the books of the Old Testament with special consideration given to the development of religious ideas, institutions, and outstanding personalities. (Fall—day and evening; summer 1964.)
- 10 *The New Testament* (3)** Jones and Staff
A study of the literature of the New Testament from the standpoint of occasion, purpose, dominant ideas, and permanent values. Special emphasis on the approach, the structure, and the significance of the Gospels and Epistles. (Spring—day and evening.)
- 59-60 *History of Religions* (3-3)** Wallace, Yeide
First half: primitive and ancient national religions; Confucianism, Taoism, Buddhism, Hinduism, and Shintoism—their historical setting, founders, and development of religious thought and culture. *Second half:* Judaism, Christianity, and Islam—analysis of their origin, evolution, and contemporary status. (Academic year—day and evening; summer 1964.)

SECOND GROUP

- 103 *The Prophets, Their Times and Their Message* (3)** Yeide
The development of propheticism in the Old Testament; cultural, economic, psychological, and religious factors in the movement; elements of lasting value in the prophetic teaching. A few of the prophets will be selected for particular study. (Fall—day.)
- 104 *The Life and Thought of Jesus* (3)** Yeide
A comprehensive study of the life and teachings of Jesus as they relate to problems of belief, standards of value, and patterns of life; the significance of the message of Jesus for our own times. (Spring—day.)
- 105 *The Life and Thought of Paul* (3)** Jones
Greek and Hebrew backgrounds of early Christianity, the Roman world of the first century, religious and social conditions affecting the spread of Christianity, the life and journeys of Paul, Paul's teaching and presentation of the Christian faith, the place of the Pauline epistles in the New Testament. (Summer 1964.)
- 121 *Problems of Western Religious Thought* (3)** Yeide
The nature of religious truth and experience; the existence, character, and activity of God; the predicament of modern man; the problem of evil and suffering; eternal life; science and religion; the meaning of worship; religious views of history. (Fall—day.)
- 122 *Christian Ethics and Modern Society* (3)** Yeide
The nature and principles of the Christian life as developed by the Christian community; problems of personal conduct; the application of the Christian standard to family, social, and economic institutions. (Summer 1964.)
- 131 *History of Christianity to the Reformation* (3)** Wallace and Staff
The rise and expansion of Christianity, the development of Christian thought, the evolution of church organization and worship, the Renaissance and pre-Reformation dissent. (Fall—day.)
- 132 *History of Modern Christianity* (3)** Wallace and Staff
The origin and development of Protestantism; the Roman Catholic revival; the status of the Eastern churches; doctrines, worship, expansion, church and state, and relation to modern thought and life. (Spring—day.)
- 135 *History of Judaism to the Talmud* (3)** Seaman
A study of the history and religious thought of the Jewish people from the Maccabean revolt to the compilation of the Talmud. (Fall—day.)

- 136 *History of Medieval and Modern Judaism* (3) Seaman
A study of the history and religious thought of the Jewish people from the compilation of the Talmud to the present. (Spring—day.)
- 141-42 *Religious Education* (3-3)
Principles and practices of religious education in the home, church, and community; basic educational procedures and special techniques; organization and administration of religious education. (Not offered 1964-65.)
- 172 *Religion in American Culture* (3) Wallace
Growth of religious bodies and institutions in American culture, the heritage of religious freedom and diversity, religion and literature, revivalism and education, science and religious thought, divisions and cooperative movements in religion. (Spring—evening; summer 1964.)
- 199-200 *Proseminar: Readings for the Religion Major* (3-3) Yeide, Wallace
Readings and group discussions. (Academic year—as arranged.)

THIRD GROUP

- 209-10 *Seminar in Biblical Literature* (3-3) Jones
Study of the main problems of Biblical literary and historical criticism. (Academic year—evening.)
- 211-12 *Seminar in Biblical Thought* (3-3) Jones
Study of the Biblical interpretation of history and reality and its relation to Biblical beliefs about God, man, and the world. (Not offered 1964-65.)
- 222 *Seminar in Christian Ethics* (3) Yeide
Study of important tendencies in the ethical reflection of the contemporary Christian Church, giving special attention to the contributions of the social sciences to that reflection. (Spring—as arranged.)
- 231-32 *Seminar in Early and Medieval Christianity* (3-3) Jones, Wallace
An advanced study of the development of Christian thought from primitive beginnings to the Reformation. (Academic year—evening.)
- 233-34 *Seminar in Modern Religious Thought* (3-3)
Analysis of developments in western religious thought from the 16th century to the present. (Not offered 1964-65.)
- 241-42 *Seminar in Religious Education* (3-3)
Advanced course dealing with some of the major problems in the practice of religious education. (Not offered 1964-65.)
- 271 *Seminar in American Religious History to 1830* (3)
Study of religious thought and life during the colonial and early national period. (Not offered 1964-65.)
- 273 *Seminar in American Religious History since 1830* (3) Wallace
Analysis of modern and contemporary trends in American religious thought. (Fall—as arranged.)
- 291-92 *Readings and Research* (3-3) The Staff
Investigation of special problems in the history of religion. (Academic year—as arranged; summer 1964.)
- 299-300 *Thesis* (3-3) The Staff
Academic year—as arranged; summer 1964.)

RELATED COURSES IN OTHER DEPARTMENTS

Art 115, *Christian Iconography* (3)Classical Languages and Literatures 11-12, *First-year Greek* (3-3)Classical Languages and Literatures 13-14, *Second-year Greek* (3-3)Classical Languages and Literatures 21-22, *First-year Classical Hebrew* (3-3)Classical Languages and Literatures 23-24, *Second-year Classical Hebrew* (3-3)**Sociology 125, *Sociology of Religion* (3)**

*Romance Languages and Literatures**

Professors A. T. Deibert (*Emeritus*), G. E. McSpadden, L. A. Vigneras, Rafael Supervia, W. G. Clubb (*Chairman*)

Associate Professors J. W. Robb†, G. E. Mazzeo, J. A. Frey

Assistant Professors J. L. Metivier, Jr., Fred Abrams

Lecturer Esther Lawton

Instructors Elizabeth Neyman, G. P. Huvé, Eulogia Llansa, R. M. Riggs, Ruth Weinreb, Carlos Figueredo, A. L. Marti

Language Workshops Supervisor R. T. Tyser

Courses are generally conducted in the language concerned. For General Courses in Romance Languages and Literatures (French, Italian, Portuguese, Spanish), see page 377.

Bachelor of Arts with majors in (1) *French Language and Literature*, (2) *Spanish-American Literature*, and (3) *Spanish Language and Literature* (*Field-of-Study*).—Prerequisite: the Arts and Letters curriculum, page 70.

Required: the general requirements, pages 76-80 and the passing of the major examination at the end of the senior year. The coordinated field of knowledge upon which the student will be examined includes the political, social, and cultural backgrounds of the literature studied; the writers and their works. Proficiency in the spoken and written language is required. Majors in Romance Languages are strongly advised to study Latin, a knowledge of which is generally required for graduate work. The Department provides a seminar in each of the major fields intended to assist the student in his preparation for the major examination.

Master of Arts in the fields of (1) *French Language and Literature*, (2) *Spanish-American Literature*, and (3) *Spanish Language and Literature*.—Prerequisite: the degree of Bachelor of Arts in the appropriate field from this University, or the equivalent.

Required: the general requirements, pages 83-85. The thirty hours of required work must include a thesis, for which six hours of credit are allotted. The remainder of the program is arranged in consultation with the student's major adviser.

Master of Arts in the field of Linguistics (*an interdepartmental degree offered in the departments of Germanic Languages and Literatures and Romance Languages and Literatures*).—Prerequisite: a Bachelor of Arts degree, preferably with a major in French, Ger-

* The Staff of Instruction is for the academic year 1963-64.

† On sabbatical leave spring semester 1963-64.

man, or Spanish at this University, or the equivalent, and the approval of candidacy by the Committee on Linguistic Study.

Required: the general requirements, pages 83-85, including a thesis and twenty-four semester hours of second group courses selected in consultation with the chairman of the department directing the Master's program and approved by the Committee on Linguistic Study. The candidate's program will normally be selected from courses in Anthropology, English, French, German, Mathematics, Philosophy, Psychology, Slavic Languages, Spanish, and Statistics listed on pages 321-322.

Doctor of Philosophy.—See pages 87-95.

Bachelor of Arts in Education with teaching fields in French and in Spanish.—Prerequisite: the Education curriculum, page 72.

Required: the French option or the Spanish option and the professional courses listed in the School of Education Catalogue.

FRENCH

FIRST GROUP

1-2 First-year French (3-3)

The Staff

A year course; credit is not given for the first half until the second half is completed. For beginners. Pronunciation, conversation, grammar, composition, reading of modern French prose. Aural training, oral practice in electronic language workshop. Workshop fee, \$6 a semester. (First half: fall and spring—day and evening; summer 1964. Second half: fall and spring—day and evening; summer 1964.)

2X First-year French (3)

Riggs and Staff

An intensive course to which are assigned entering students with one or more years of high school French whose placement tests show them inadequately prepared for the regular work of French 3. The course meets six hours a week (3 hours of lecture, 2 hours of drill, and 1 hour of workshop) and carries 3 semester hours of credit. The total fee is \$145 (the tuition fee of \$120 plus an additional fee of \$25) plus workshop fee, \$6. (Fall and spring—day.)

3-4 Second-year French* (3-3)

The Staff

A year course; credit is not given for the first half until the second half is completed. Conversation, grammar, composition, reading in modern French prose, introduction to French civilization. Aural training, oral practice in electronic language workshop. Workshop fee, \$6 a semester. Prerequisite: French 1-2, 2X, or two years of high school French. (First half: fall and spring—day and evening; summer 1964. Second half: fall—day; spring—day and evening; summer 1964.)

9-10 French Conversation and Composition (3-3)

The Staff

Prerequisite: French 4 or the equivalent and permission of the instructor. (Academic year—day and evening; summer 1964.)

49 French Readings for Nonmajor Students (3)

Lawton and Staff

Primarily for graduate students preparing for reading examinations. Undergraduates admitted only with specific permission of the instructor. No academic credit for graduate students. (Fall and spring—evening; summer 1964.)

51-52 Survey of French Literature and Civilization* (3-3)

Metivier

The social, artistic, and cultural background of French civilization. Lectures, readings, recitations, and informal discussions. (Academic year—day and evening; summer 1964.)

* French 3-4 is required, and French 51-52 is recommended, as prerequisite to all second-group courses.

SECOND GROUP*

- 103 *Problems of Pronunciation and Intonation* (3) Vigneras
Recommended for majors and required for a Bachelor of Arts in Education degree with a teaching field in French. (Fall—day.)
- 109-110 *Advanced French Conversation and Composition* (3-3) Vigneras
Normally fiction will receive greater emphasis in the fall semester and style in the spring semester. Prerequisite: French 10 or the equivalent and permission of the instructor. (Academic year—day; summer 1964—French 109 (3).)
- 119-120 *French Literature of the 16th Century* (3-3) Metivier
Prose, poetry, drama, and memoirs of the French Renaissance; Rabelais, Montaigne, Marot, La Fontaine, etc. Class analysis of texts, collateral reading. (1965-66 and alternate years.)
- 121-122 *French Literature of the 17th Century* (3-3) Riggs
History, philosophy, criticism, memoirs, letters, eloquence, drama, fiction, poetry. Class analysis of texts; collateral readings. (1964-65 and alternate years: academic year—day.)
- 123-124 *French Literature of the 18th Century* (3-3) Wenzel
History, philosophy, criticism, letters, drama, fiction, poetry, the "salons", the literary salons, the age of science. Class analysis of texts, collateral reading, lectures on literature and history. (1965-66 and alternate years.)
- 125-126 *French Literature of the 19th Century* (3-3) Frey
Romanticism and realism: fiction, poetry, drama, criticism. Class analysis of texts; collateral reading, lectures on literature and history. (1964-65 and alternate years: academic year—evenings.)
- 127-128 *French Literature of the 20th Century* (3-3) Club
Fiction, poetry, drama, criticism. Class analysis of texts, collateral reading, lectures on literature and history. (1965-66 and alternate years.)
- 129-130 *Contemporary French Literature* (3-3) Club
Existentialism and surrealism in the novel, poetry, and drama from 1938 to the present. Lectures, discussions, and reports. (Not offered 1964-65.)
- 199-200 *Proseminar Readings for the Major in French Language and Literature* (3-3) Frey
Conferences and group discussions. (Academic year—as arranged.)

THIRD GROUP

- 201 *Doctoral Seminar* (3) The Staff
Introduction to the doctoral program. Methods of research and presentation in the Romance languages and literatures. (Offered 1965-66.)
- 202 *History and Methods of Literary Analysis and Criticism* (3) Frey
Literary criticism from Aristotle to the New Criticism. Methods to be demonstrated and applied to selected passages from French literature. Emphasis on technique known as *exégèse de texte*. (Fall—day.)
- 212 *Historical French Grammar* (3) Vigneras
The phonology, morphology, and syntax of Old French, and its development from Vulgar Latin. Practical exercises based on texts. Prerequisite: a second-group course in French literature, Romance 219 *Introduction to Romance Philology and Linguistics* (see General Romance Courses), and an elementary knowledge of Latin. (Spring—day.)

* French 104 is required, and French 51-52 is recommended, as prerequisites to all second-group courses.

- 213-14 *Old French* (3-3) Vigneras
French literature to the end of the Middle Ages. Prerequisite: a second-group course in French literature and the permission of the instructor. (Offered 1965-66.)
- 224 *Seminar: the Age of Rabelais* (3)
Humanism and the Reformation in French letters. Rabelais and the *contours*. Poetry to the Pléiade. Research projects, papers, reports. (1965-66 and alternate years.)
- 225 *Seminar: the Age of Montaigne* (3)
Montaigne: the man and the development of his thought. Poetry from the Pléiade to Malherbe. Drama. Research projects, papers, reports. (1965-66 and alternate years.)
- 227 *Seminar: the Renaissance in Europe* (3) Child
The sources and nature of literary trends in Western Europe from Dante to Calderón, and their relationship to French literature. Readings, papers, and discussion. (1964-65 and alternate years: fall—day.)
- 231-32 *Theater in the 17th Century* (3-4) Child
A survey of the development of theatrical arts and the drama. Research papers and reports. Prerequisite: French 121-22 or the equivalent. (1964-65 and alternate years: academic year—day.)
- 234 *Nondramatic Literature of the 17th Century* (3) Child
Rationalism and the revolt against authority expressed in literature. Development of classical doctrine. Discussion of texts and collateral readings. (Offered 1965-66.)
- 241 *The Rationalistic Current in the 18th Century* (3) Weinreb
Bayle, Fontenelle, Montesquieu, Voltaire, Rousseau, as philosophers, dramatists, and critics of their age; their contributions to the intellectual evolution of France and Europe. (Fall—day.)
- 242 *Seminar: the French Novel in the 18th Century* (4) Weinreb
Development of the novel in France from *Le Princesse de Clèves* to the French Revolution; themes and techniques. (Spring—day.)
- 244 *Seminar: Diderot and the Encyclopédie* (4) Weinreb
Diderot's contributions to 18th century novel, drama, and aesthetic criticism; the Encyclopédie as embodiment of 18th century thinking. (Offered 1965-66.)
- 250 *Romanticism in France* (4) Frey
The theory and practice of romanticism in France; romantic love, the Napoleonic myth, exoticism, local color, sentimentalism, and religiosity as reflected in new styles of prose and poetry. Romantic criticism. The preparation for romance. (Summer 1964.)
- 251 *Naturalism* (3) Frey
Development of theory and style; influence of history, science, philosophy, and art on literary naturalism. Naturalistic criticism. (Offered 1965-66.)
- 252 *Flaubert and French Realism* (4) Frey
Prose style in the novel from Flaubert with emphasis on the latter; literary doctrines of realism and its stylistic techniques; the works of Balzac, Stendhal, Mérimée, Gautier, Flaubert, and selected correspondence. (Spring—day.)
- 253 *Seminar: Symbolism in Poetry* (3) Child
The origin and nature of symbolism from Mallarmé to Valéry. Class analysis of texts and reports. Prerequisite: French 127-28 or the equivalent. (Fall—day.)
- 254 *Seminar: Victor Hugo* (3) Frey
Hugo and the development of the romantic ideal in prose and poetry; Hugo and romantic theater and criticism. Analysis, classification, and criticism of romantic themes and techniques in the works of Hugo; contemporary Hugo criticism. (Spring—day.)
- 255 *Seminar: Stendhal as a Realist* (3) Child
Stendhal's novels and autobiographical works. Stendhal and Italy. Readings, discussions, and papers. (Offered 1965-66.)

264 *Seminar: Modern Period* (3)
Poetry, prose, drama. (Offered 1965-66.)

Club

299-300 *Thesis* (3-3)
(Academic year—as arranged; summer 1964.)

The Staff

ITALIAN

FIRST GROUP

1-2 *First-year Italian* (3-3)

The Staff

A year course; credit is not given for the first half until the second half is completed. For beginners. Pronunciation, conversation, grammar, composition, reading of modern Italian prose. Aural training, oral practice in electronic language workshop. Workshop fee, \$6 a semester. (First half: fall and spring—day and evening; summer 1964. Second half: fall and spring—day and evening; summer 1964.)

SPANISH

FIRST GROUP

1-2 *First-year Spanish* (3-3)

The Staff

A year course; credit is not given for the first half until the second half is completed. For beginners. Pronunciation, conversation, grammar, composition, reading of modern Spanish prose. Aural training, oral practice in electronic language workshop. Workshop fee, \$6 a semester. (First half: fall and spring—day and evening; summer 1964. Second half: fall and spring—day and evening; summer 1964.)

2X *First-year Spanish* (3)

Neyman and Staff

An intensive course to which are assigned entering students with one or more years of high school Spanish whose placement tests show them inadequately prepared for the regular work of Spanish 3. The course meets six hours a week (3 hours of lecture, 2 hours of drill, and 1 hour of workshop) and carries 3 semester hours of credit. The total fee is \$145 (the tuition fee of \$120 plus an additional fee of \$25) plus workshop fee, \$6. (Fall and spring—day.)

3-4 *Second-year Spanish** (3-3)

The Staff

A year course; credit is not given for the first half until the second half is completed. Conversation, grammar, composition, reading of modern Spanish prose, introduction to Hispanic civilization. Aural training, oral practice in electronic language workshop. Workshop fee, \$6 a semester. Prerequisite: Spanish 1-2, 2X, or two years of high school Spanish. (First half: fall and spring—day and evening; summer 1964. Second half: fall—day; spring—day and evening; summer 1964.)

9-10 *Spanish Conversation and Composition* (3-3)

The Staff

Prerequisite: Spanish 4 or the equivalent and permission of the instructor. Academic year—day and evening; summer 1964.)

49 *Spanish Readings for Nonmajor Students* (3)

The Staff

Primarily for graduate students preparing for reading examinations. Undergraduates admitted only with specific permission of the instructor. No academic credit for graduate students. (Fall and spring—evening.)

51-52 *Survey of Spanish Literature and Civilization** (3-3)

Supervisors

The social, artistic, and cultural background of Spanish civilization. Lectures, readings, recitations, and informal discussion. (1964-65 and alternate years: academic year—day; 1965-66 and alternate years: academic year—evening; summer 1964.)

* Spanish 3-4 is required, and Spanish 51-52 is recommended, as prerequisite to all second-group courses in Spanish.

SECOND GROUP*

- 103 *Problems of Pronunciation and Intonation* (3) McSpadden
Descriptive and practical review of Spanish sounds and inflections. Remedial exercises. Recommended for majors and required for the Bachelor of Arts in Education degree with a teaching field in Spanish. (Fall—day.)
- 109-110 *Advanced Spanish Conversation and Composition* (3-3) Mazzeo
Normally diction will receive greater emphasis in the fall semester and style in the spring semester. Prerequisite: Spanish 10 or the equivalent and permission of the instructor. (Academic year—day; summer 1964—Spanish 109 (3).)
- 121-122 *Spanish Literature of the Golden Age* (3-3) Abrams
Lope de Vega, Calderón; the classic drama, the ballad, lyric poetry, prose. Class analysis of texts, collateral reading, lectures on literature and history. (1965-66 and alternate years.)
- 123-124 *Cervantes: Don Quijote* (3-3) McSpadden
Life and works of Cervantes; the *Quijote* and its relationship to other works of the Golden Age. Lectures, discussions, and reports. (1964-65 and alternate years: academic year—evening.)
- 125-126 *Modern Spanish Literature* (3-3) Mazzeo
Prose and poetry of the 18th and 19th centuries. Class analysis of texts, collateral reading, lectures on literature and history. (1964-65 and alternate years: academic year—day.)
- 127-128 *Contemporary Spanish Literature* (3-3) Supervía
Prose and poetry of the 20th century. Class analysis of texts, collateral reading, lectures on literature and history. (1965-66 and alternate years.)
- 129 *The Romantic Drama in Spain* (3) Mazzeo
Class analysis of texts, collateral reading, and lectures on the Spanish Romantic Drama. (Summer 1964 and alternate summers—evening.)
- 151-152 *The Spanish-American Novel* (3-3) Robb
Development of the novel in Spanish America. Lectures, collateral reading, and class analysis of texts. (1965-66 and every third year.)
- 155-156 *Spanish-American Literature to 1880* (3-3) Robb
The literature of Spanish America from the colonial period to the latter part of the 19th century. Lectures, collateral reading, reports, and class analysis of important works. (1966-67 and every third year.)
- 157-158 *Spanish-American Literature since 1880* (3-3) Robb
The literature of Spanish America from 1880 to the contemporary period. Lectures, collateral reading, reports, and class analysis of important works. (1964-65 and every third year: academic year—day.)
- 197-98 *Proseminar: Readings for the Major in Spanish-American Literature* (3-3) Robb
Required of all majors. Conferences and group discussions. (Academic year—as arranged.)
- 199-200 *Proseminar: Readings for the Major in Spanish Language and Literature* (3-3) Abrams, Mazzeo
Required of all majors. Conferences and group discussions. (Academic year—as arranged.)

* Spanish 9-4 is required, and Spanish 51-52 is recommended, as prerequisite to all second-group courses in Spanish.

THIRD GROUP

- 201 *Doctoral Seminar* (3) The Staff
Introduction to the doctoral program, advanced study and methodology in the Romance languages and literatures. (Fall—day.)
- 202 *Explicacion de textos* (3) Robt
An analytical introduction to the study of Spanish and Spanish American literature. The method will be demonstrated and practiced on selected passages. (Spring—day.)
- 212 *Historical Spanish Grammar* (3) McSpadden
Study of phonology, morphology, syntax, and lexicology of Old Spanish, including its development from Vulgar Latin. Practical exercises based on texts. Prerequisite: a second-group course in Spanish literature, Romance 279 *Introduction to Romance Philology and Linguistics* (see General Romance Courses), and an elementary knowledge of Latin. (Offered 1965-66.)
- 214 *Old Spanish* (3) McSpadden
Literature and language: *El poema de Mio Cid*, *El Conde Lucanor*, *El Libro de Buen Amor*, etc. Prerequisite: a second-group course in Spanish literature, Romance 279 *Introduction to Romance Philology and Linguistics* (see General Romance Courses), and an elementary knowledge of Latin. (Spring—day.)
- 221 *Seminar: Works of Cervantes* (3) McSpadden
Problems of composition, interpretation, criticism, literary history, and aesthetics. (Fall—day.)
- 223 *Seminar: Drama of the Golden Age* (3) Abrams
A study of the Spanish theater from its beginnings to Calderón. Reading and analysis of representative works of Lope, Tirso, Alarcón, Calderón, and the pre-Lopistas. (Fall—day.)
- 224 *Seminar: the Renaissance in Spain* (3) Abrams
Historical and literary aspects of 16th-century Spain. Emphasis on important prose works, mysticism, and lyric poetry. (Offered 1965-66.)
- 226 *Seminar: the Novel in the Golden Age* (3) Abrams
Various manifestations of the novel: chivalric, pastoral, byzantine, with main emphasis on the picaresque. (Summer 1964.)
- 231 *Seminar: Spanish Writers of the 18th Century* (3) Mazzeo
Lectures and analysis of principal authors and works; relationships with subsequent literary movements. (Offered 1965-66.)
- 242 *Seminar: Spanish Romanticism* (3) Mazzeo
Lectures and analysis of principal authors and works. Collateral readings of origins and developments. (Offered 1965-66.)
- 244 *Seminar: Naturalism and the Spanish Novel* (3) Mazzeo
The development of Naturalism in 19th century Spain. Analysis of representative works of Pardo Bazán, Clarín, Blasco Ibáñez, and others. (Spring—day.)
- 245-46 *Seminar: Works of Galdós* (3-3) Supervia
Ideological and stylistic analysis, relationship of his works to the literary movements of the second half of the 19th century. (Academic year—day.)
- 251 *Seminar: Works of Unamuno and Ortega y Gasset* (3) Supervia
A study of their thought; analysis and commentary on the texts. (Offered 1965-66.)
- 253 *Seminar: Modern and Contemporary Spanish American Poetry* (3) Robt
Genesis and development of the Modernista Movement in Hispanic-America and Spain. Selected Post-Modernists. (Fall—day.)

- 261 *Seminar: Spanish-American Essayists* (3) Robb
The Spanish-American essay as an artistic form, studied in selected modern essayists such as Rodó, Ricardo Rojas, Vasconcelos, and Artimegas. (Offered 1965-66.)
- 264 *Seminar: Recent Trends in Spanish-American Fiction* (3) Robb
Contemporary *cuentistas* and novelists: J. L. Borges, J. J. Arreola, A. Yáñez, C. Fuentes, E. Godoy, and A. Carpentier. (Spring—day.)
- 266 *Seminar: Alfonso Reyes* (3) Robb
Alfonso Reyes the essayist-artist, poet, and complete humanist as studied in his various prose and poetic works. (Offered 1965-66.)
- 299-300 *Thesis* (3-3) The Staff
(Academic year—as arranged; summer 1964.)

GENERAL COURSES IN ROMANCE LANGUAGES AND LITERATURES

- 270 *Experimental Phonetics* (3) McSpadden
History; problems and methods of analysis in the physiological and acoustical branches of phonetics and intonation, their relationships, their application to the Romance languages, and oral aspects of the Romance literatures. (Offered 1965-66.)
- 272 *Comparative Romance Languages and Literatures I (Italian)* (3) Clubb
Intensive study of Italian grammar with reference to French, Spanish, and other Romance languages. (1964-65 and alternate years: fall—day.)
- 273 *Comparative Romance Languages and Literatures II (Italian)* (3) Clubb
For candidates for the degree of Doctor of Philosophy. The Italian language and literature from Dante to Goffioni. Lectures, discussions, exercises, and readings. Prerequisite: Romance 272 *Comparative Romance Languages and Literatures I* or the equivalent. (1964-65 and alternate years: spring—day.)
- 275 76 *Comparative Romance Languages and Literatures III-IV* Robb
(Portuguese) (3-3)
For candidates for the degree of Doctor of Philosophy. Lectures, discussions, exercises, and readings. (Offered 1965-66.)
- 277 78 *Comparative Romance Languages and Literatures V-IV* Robb
(Portuguese) (3-3)
For candidates for the degree of Doctor of Philosophy. Portuguese and Brazilian literatures from Camões to the 20th century. (Academic year—day.)
- 279 *Introduction to Romance Philology and Linguistics* (3) McSpadden
Study of principles found in the development of the Romance languages and methods of analysis at the present time. A general course for graduate students in the fields of the Romance languages and literatures. Prerequisite: an elementary knowledge of Latin. This course is normally followed by French 212 or Spanish 212. (Offered 1965-66.)
- 280 *Introduction to Romance Stylistics* (3) Frey
Special emphasis will be placed on examples from French and Spanish literature. (Spring—day.)
- 283 *Problems of Teaching Romance Languages and Literatures in College* (3) McSpadden
For candidates for the degree of Doctor of Philosophy. Principles and problems of learning and teaching the language and literature. Apprenticeship in college classes and the language laboratory. (Fall—day; summer 1964.)

Russian

See "Slavic Languages and Literatures"

Secretarial Studies*

Coordinator Olive McKay

Lecturers Amil Jackowski, N. A. Smith, R. W. Throckmorton

Associate Dorothy Brewer

Associate in Arts (Two-year vocational curriculum in Secretarial Studies).—See the College of General Studies Catalogue for complete details.

Associate in Secretarial Administration.—See the College of General Studies Catalogue for complete details.

Bachelor of Arts in Education with a teaching field in Business Education.—Prerequisite: the Education curriculum, page 72.

Required: the Business Education option and the professional courses listed in the School of Education Catalogue.

1 Elementary Typewriting (3)

Fundamental techniques of typewriting, basic styles of business letters, introduction to tabulation, and preparation of general office forms. Laboratory fee, \$7. (Fall and spring—evening.) The Staff

2 Intermediate Typewriting (3)

The business letter and its arrangement, advanced tabulation, manuscript typing, office forms, stencil cutting, and legal documents. Prerequisite: Secretarial Studies 1 or the equivalent; ability to type accurately at 30 words a minute. Laboratory fee, \$7. (Fall—evening; spring—day and evening.) The Staff

11 Elementary Shorthand and Transcription (3)

A study of the principles of Gregg shorthand correlated with dictation and transcription. Minimum dictation speed of 60 words a minute attained. Laboratory fee, \$3. (Fall—day and evening.) The Staff

12 Intermediate Shorthand and Transcription (3)

Review of the principles of Gregg shorthand. Dictation and transcription on general and specialized business subjects. Minimum dictation speed of 80 words a minute attained. Prerequisite: Secretarial Studies 11 or the equivalent; ability to take dictation at 60 words a minute. Laboratory fee, \$5. (Spring—day and evening.) The Staff

15 Advanced Shorthand, Typewriting, and Transcription (3)

Dictation and transcription involving vocabularies in specific businesses. Minimum speed of 100 words a minute attained in dictation. Prerequisite: Secretarial Studies 12 or the equivalent. Laboratory fee, \$5. (Fall—day.) The Staff

16 Secretarial Shorthand, Typewriting, and Transcription (3)

Dictation and transcription involving vocabularies used in the legal and medical professions. Minimum dictation speed of 120 words a minute attained. Prerequisite: Secretarial Studies 15 or the equivalent. Laboratory fee, \$5. (Spring—day.) The Staff

* This program is administered by the College of General Studies. The Staff of Instruction is for the academic year 1963-64.

- 51 **Business Correspondence (3)** The Staff
Development of the technique of effective communication with reference to business letters and forms. Survey and analysis of current business literature. (1964-65 and alternate years: fall—day; 1965-66 and alternate years: fall—evening.)
- 54 **Secretarial Practice (3)** The Staff
A thorough study of secretarial problems and procedures. Practice in the use of secretarial equipment and supplies. The study of secretarial personality and office relationships. (Spring—day.)

Sino-Soviet Studies

See "Institute for Sino-Soviet Studies"

Slavic Languages and Literatures*

Associate Professor Helen Yakobson† (Chairman)
Assistant Professors G. A. Olkhovsky, Nadine Popluiko
Lecturers Kiril Jaszenko, M. I. Filipovitch-Nikatch, A. A. Schultz
Instructor Victoria Sander

Bachelor of Arts with a major in Russian (Departmental).—Prerequisite: the Arts and Letters curriculum, page 70.

Required: in addition to the general requirements, pages 76-80, Slavic Languages 91-92 or 93-94, 179-80, and 161-62 or History 145-46, and eighteen semester hours to be selected from second-group courses in Russian.

Russian majors are expected to have a reasonable proficiency in spoken and written Russian, a firm grasp of the fundamentals of Russian grammar, a general comprehension of Russian culture and history, and a general knowledge of Russian literature, as well as some first-hand acquaintance with writings of major Russian writers. Students who are already proficient in Russian, may upon passing an appropriate examination, waive any or all of the first-group language courses, as well as up to six hours of second-group language courses.

Bachelor of Arts in Education with a major teaching field in Russian.—Prerequisite: the Education curriculum, page 72.

Required: the Russian option and the professional courses listed in the School of Education Catalogue.

Master of Arts in the field of Linguistics.—See pages 321-22 and the departments of Germanic Languages and Literatures and Romance Languages and Literatures.

* The Staff of Instruction is for the academic year 1963-64.
† On sabbatical leave spring semester 1963-64.

FIRST GROUP

1-2 *First-year Russian* (3-3)

Yakobson and Staff

A year course; credit is not given for the first half until the second half is completed. A beginners' course in fundamentals of grammar and pronunciation with graded reading, oral drill, and written practice. Listening comprehension and oral practice in electronic language workshop. Workshop fee, \$6 a semester. (First half: fall and spring—day and evening; summer 1964. Second half: fall and spring—day and evening; summer 1964.)

3-4 *Second-year Russian* (3-3)

Yakobson and Staff

A year course; credit is not given for the first half until the second half is completed. Systematic review of grammar. Study of special problems of Russian morphology and syntax. Oral and written reports on assigned topics. Workshop fee, \$6 a semester. (First half: fall—day and evening; spring—evening. Second half: fall—evening; spring—day and evening.)

5 *First-year Russian* (6)

Yakobson and Staff

Classroom (5 hours), laboratory (2 hours). An intensive, accelerated beginners' course in fundamentals of grammar and pronunciation with graded reading, oral drill, and written practice. Listening comprehension and oral practice in electronic language workshop. Equivalent in coverage to Russian 1-2. Workshop fee, \$10. (Fall—day.)

6 *Second-year Russian* (6)

Yakobson and Staff

Classroom (5 hours), laboratory (2 hours). An intensive, accelerated course. Systematic review of grammar. Study of special problems of Russian morphology and syntax. Oral and written reports on assigned topics. Equivalent in coverage to Russian 3-4. Workshop fee, \$10. (Spring—day.)

9-10 *Russian Conversation and Composition* (3-3)

The Staff

Listening comprehension; oral and written practice. Prerequisite: Russian 3-4 or permission of the instructor. Workshop fee, \$6 a semester. (Academic year—day.)

17 *Beginning Russian for Reading Examination Candidates* (0)

The Staff

For graduate students with little or no knowledge of Russian who intend to use the language as a research tool. No academic credit. Tuition fee, \$120. (Fall—evening.)

49 *Russian Readings for Nonmajor Students* (3)

The Staff

Primarily for graduate students preparing for reading examinations. Undergraduate students with permission of the instructor. No academic credit for graduate students. Prerequisite: Russian 4 or 47 or the equivalent. (Spring—evening.)

91-92 *Introduction to Russian Literature* (3-3)

A survey of Russian literature, in translation, from the earliest periods through the literary masterpieces of the 19th and early 20th centuries given in English. Lecture, recitation, and discussion. (Academic year—evening.)

93-94 *Introduction to Slavic (non-Russian) Literature* (3-3)

Filipovich-Nakach

A survey of non-Russian Slavic literatures, in translation, from the early periods to the present, with emphasis on the contemporary scene. Lecture, recitation, and discussion. (Academic year—evening.)

SECOND GROUP

101-2 *Readings in Modern Russian* (3-3)

Yakobson and Staff

Representative readings in the social sciences and Soviet periodical literature; study of current political terminology, abbreviations, and Soviet idiom. (Academic year—day.)

- 103-4 *Scientific Russian* (3-3) The Staff
Readings in the major fields of Russian contemporary scientific literature and alternate years; academic year—evening.) (1964-65)
- 109-10 *Advanced Russian Conversation and Composition* (3-3) The Staff
Developing proficiency in oral and written expression. (Academic year—day; summer 1964.)
- 125 *Russian Linguistic Structure* (3) Chavchavadze*
Descriptive treatment of phonology, morphology, and syntax of contemporary Russian (Fall—evening.)
- 126 *Comparative Russian-English Linguistic Structure* (3) Chavchavadze*
Contrastive treatment of Russian and English phonology, morphology, and syntax, with emphasis on pedagogical applications. (Spring—evening.)
- 141-42 *Russian Literature of the 19th Century* (3-3) Popluiko
Lectures, special reports, class analysis of selected works of 19th century Russian literature—in Russian. (1964-65 and alternate years; academic year—evening.)
- 151-52 *Russian Literature of the 20th Century* (3-3) Popluiko
Lectures, special reports, class analysis of selected works of 20th century Russian literature—in Russian. (1965-66 and alternate years.)
- 161-62 *Russian Culture* (3-3) Olkhovsky
A survey of Russian cultural heritage from the origins of ancient Russia to the present given in English. Lecture, recitation, discussion, and individual reports on assigned topics. (Academic year—evening; summer 1964.)
- 165 *Soviet Literature* (3) Popluiko
A survey of major literary figures, literary movements, and literary styles in translation. Revolution and its impact on literature and on writers. The revival of the psychological novel; short story; contemporary poetry. (Fall—evening.)
- 179-80 *Advanced Russian for Undergraduate Majors* (1-1) Yakobson
(Academic year—as arranged.)

Sociology and Anthropology[†]

Professors H. L. Geisert, R. W. Stephens (*Acting Chairman*)
Professorial Lecturer C. L. Perian
Associate Professors R. G. Brown, J. M. Campbell, Joseph Monane (*Research*)
Assistant Professor P. F. Gallagher
Lecturer Cynthia Nathan

Bachelor of Arts with a major in Sociology (Departmental).—Prerequisite: the Arts and Letters curriculum, page 70, including Anthropology 1 and Sociology 2, or the equivalent. Required, in addition to the general requirements, pages 76-80, twenty-four semester hours in Sociology, which must include 143 and 149.
American Thought and Civilization 101 *American Civilization* is recommended as a senior year elective for Sociology majors.

* Appointment effective September 1964.
† The Staff of Instruction is for the academic year 1963-64.

Bachelor of Arts with a major in Anthropology (Departmental).—Prerequisite: the Arts and Letters curriculum, page 70, including Anthropology 1 and Sociology 2, or the equivalent.

Required: in addition to the general requirements, pages 76-80, twenty-four semester hours in Anthropology, which must include 192.

American Thought and Civilization 101 American Civilization is recommended as a senior-year elective for Anthropology majors.

Master of Arts in the field of Sociology.—Prerequisite: the degree of Bachelor of Arts with a major in Sociology at this University or the equivalent.

Required: the requirements, pages 83-85. All courses must be approved in advance by the adviser.

Master of Arts in the field of Anthropology.—Prerequisite: the degree of Bachelor of Arts with a major in Anthropology from this University or the equivalent.

Required: the requirements, pages 83-85. All courses must be approved in advance by the adviser.

Master of Arts in the field of Linguistics.—See pages 321-22 and the departments of Germanic Languages and Literatures and Romance Languages and Literatures.

SOCIOLOGY

FIRST GROUP

2 *Man, Culture, and Society II** (3)

(Formerly Sociology and Anthropology 1)

Development of culture and personality, the impact of groups and institutions on man's social behavior. A survey of the fields within sociology. (Fall and spring—day and evening; summer 1964.)

11 *American Social Problems* (3)

(Formerly Sociology and Anthropology 2)

Analysis of major social problems confronting the United States. Factors producing social problems; their nature and treatment. (1965-66 and alternate years.)

SECOND GROUP

120 *Aging in Modern Society* (3)

Aging as a biological and sociological phenomenon; development of old age as a social problem with special emphasis on economic dependency and employment; the social role of the aged. (1965-66 and alternate years.)

123 *Fields of Social Work* (3)

Introduction to the nature and scope of social work; the development of social work program; functions of social case work, social group work, and social action. (1965-66 and alternate years.)

124 *Medical Sociology* (3)

Sociological factors and processes which relate to physical and mental health and disease; analysis of patterned social relationships in the field of health and medicine; the hospital as a social system. (1964-65 and alternate years; spring—day.)

125 *Sociology of Religion* (3)

Introduction to the history of the discipline; analysis of the reciprocal impact of society and religion.

* Anthropology 1 and Sociology 2 combine to make a year course, which is prerequisite to all other courses in Sociology and Anthropology.

- ular upon religious and religious upon secular institutions, with special attention to the contemporary American situation. (1964-65 and alternate years: fall-day.)
- 126 *Urban Sociology* (3)
The place of the city in the larger society; growth of the city, problems of urban living, group life, personality, urban housing, and city planning. Includes consideration of suburban development. (1965-66 and alternate years.)
- 129 *Race and Minority Groups* (3)
Analysis of the relationships between dominant and minority groups in society, particularly in the United States; nature and range of problems; analysis of the phenomenon of prejudice. (1965-66 and alternate years; summer 1964.)
- 130 *Social Stratification: Class and Status* (3)
(Formerly Sociology and Anthropology 161)
Nature of class structure patterns of status, prestige relations in American society, differential class behavior, analysis of comparative social structure and social mobility. (1964-65 and alternate years: spring-day.)
- 131 *Social Institutions* (3)
Functional analysis of basic social institutions: family, education, religion, economy, and state in the structure of American Society. (1964-65 and alternate years: fall-day.)
- 132 *Courtship and Marriage* (3) Stephens
Dating and courtship as social processes, reasons for marriage, marriage laws, mate selection, factors in marital adjustment; prediction and counseling. (1965-66 and alternate years; summer 1964.)
- 133 *The Family* (3) Stephens
Historical development of the family as a social institution, parent-child relations, family problems, disorganization and divorce, and family reorganization. (1964-65 and alternate years: fall-day.)
- 135 *Juvenile Delinquency* (3) Perian
Factors producing delinquency, juvenile detention, the juvenile court, training schools, treatment of offenders. (1964-65 and alternate years: spring-day.)
- 136 *Criminology* (3) Perian
Nature and distribution of crime, police and court systems, prisons and reformatories; treatment and prevention of crime. (1964-65 and alternate years: spring-evening.)
- 137 *Sociology of Law* (3)
The law as a social phenomenon and an agency of social control. Sociological analysis of particular problems of legal concepts, doctrine, and institutions. (1965-66 and alternate years.)
- 140 *Military Sociology* (3)
The study of the military establishment as one of the important institutions of modern society; an analysis of the distinctive forms of military organization; the social role of the professional military man. (1965-66 and alternate years; summer 1964.)
- 144 *Mass Communications* (3) Monane
The communications process; barriers to communication; structure and function of communication in society; content, control, support, and effects of mass communication. (1964-65 and alternate years: spring-day.)
- 146 *Industrial Sociology* (3) Brown
Sociological analysis of work situations, occupational mobility, development of the labor movement, industrial leadership and morale. (1964-65 and alternate years: fall-evening.)
- 147 *Sociology of Large Organizations* (3) Brown
Sociological analysis of the structural characteristics of large complex organizations;

individual accommodations to such organizations; the impact of the large organizational pattern on American social life. (1964-65 and alternate years: spring—day.)

143 *Methods of Social Research* (3)

(Formerly Sociology and Anthropology 181)

Analysis of social research techniques and the scientific method; application to social data of the case study, social survey, statistical, sociometric, and experimental methods. (1965-66 and alternate years.)

149 *Development of Social Theory* (3)

Systematic study of the important schools of sociological theory, both European and American; developments; and evaluation of the scientific contributions of each school. (1965-66 and alternate years.)

THIRD GROUP

221 *Seminar: Current Trends in Sociology* (3)

Analysis and evaluation of recent developments in sociology and an appraisal of the role of systematic theory in sociology. (1964-65 and alternate years: fall—day.)

225 *Seminar: Small Groups* (3)

General characteristics of small groups and their measurement; sociography of groups; evaluation of small group theory and sociometry; other techniques of small group research. (1965-66 and alternate years.)

226 *Problems of Underdeveloped Areas* (3)

Characteristics and problems of underdeveloped areas; the interrelationship of demographic, economic, social, and cultural factors; measures and techniques to introduce cultural changes. (1964-65 and alternate years: spring—day.)

228 *Criminal Behavior: Research and Theory* (3)

A re-evaluation of theories of criminal and deviant behavior, based on recent research findings; implications for the correction and prevention of criminal behavior. (1964-65 and alternate years: fall—day.)

240 *Sociology of Occupations and Professions* (3)

Analysis of occupational roles, occupational structures and changes within them, recruitment and training, adjustment problems at various stages of the career, relationships between stratification systems, life styles, and occupations. (1964-65 and alternate years: spring—day.)

241 *Population Problems* (3)

Composition of populations, trends in population growth and population pressure, factors producing population movements, effects of migration, population policies: emigration and birth control. (1964-65 and alternate years: fall—day.)

295-96 *Research* (arr.)

(Academic year—as arranged.)

299-300 *Thesis* (3-3)

(Academic year—as arranged; summer 1964.)

ANTHROPOLOGY

FIRST GROUP

1 *Man, Culture, and Society I** (3)

(Formerly Sociology and Anthropology 51)

The physical evaluation of man and the origins and development of culture, including

* Anthropology 1 and Sociology 2 combine to make a year course which is prerequisite to all other courses in Sociology and Anthropology.

a survey of the topic divisions of the field. (Fall and spring—day and evening; summer 1964.)

SECOND GROUP

- 152 *Physical Anthropology* (3) Stewart, Angel
A study of human variation past and present, seen as a product of physical and cultural evolution. (Spring—evening.)
- 153 *Psychological Anthropology* (3) Gallagher
The relevance of psychoanalytic and learning theories to the cross-cultural study of personality. Cultural determinants of personality formation and mental health. (Fall—day; summer 1964.)
- 154 *Primitive Economics* (3) Gallagher
The comparative study of preindustrial systems of production, distribution, and consumption. An inquiry into the applicability of Western laws of economic analysis to non-Western societies. (1964-65 and alternate years; spring—day.)
- 155 *Primitive Religion* (3) Campbell
Conceptions of the supernatural in nonliterate societies. An examination of religious beliefs and practices; the interrelatedness of religion, magic, and philosophy. (1964-65 and alternate years; spring—day.)
- 161 *Language and Culture* (3) Gallagher
(Formerly Sociology and Anthropology 143)
The structure and semantics of systems of human communication, linguistic change, the influence of language on world view. (Fall—day.)
- 172 *Native People of the New World* (3) Gallagher
A survey of representative Indian groups of the Americas from primitive bands to high civilizations, stressing the patterned nature of diverse cultural responses to universal problems of human existence. (Spring—day.)
- 173 *Cultures of the Pacific* (3) Campbell
A study of the culture, history, and ways of the life of the native peoples of Melanesia, Micronesia, and Polynesia. (Spring—day.)
- 182 *New World Archeology* (3) Gallagher
A survey of pre-Columbian culture history, from man's entry into the Americas during the Pleistocene Ice Age until the time of the first European contacts. (Spring—day.)
- 183 *Old World Archeology* (3) Campbell
A survey of the culture of history of man exclusive of the Americas, from the earliest hominid cultures to the advanced civilizations and their secondary centers. (Fall—day.)
- 192 *Anthropological Theory* (3) Campbell
Analysis of the theoretical postulates and assumptions underlying the development of modern cultural anthropology. (Spring—evening.)
- 193 *Anthropological Methods* (3) Campbell
Approaches to library and field research in linguistics, archeology, and ethnography; conceptual bases and bias in the delineation of problems, in the selection, analysis and organization of data, and in the preparation of the final report. (1964-65 and alternate years; fall—evening.)

THIRD GROUP

- 261 *Cultural Origins of the New World* (3)
(1965-66 and alternate years.)

Campbell

- 262 *Applied Anthropology* (3)
(Formerly Sociology and Anthropology 155)

Gallagher

The use of anthropological methods and techniques in such specific fields as government, business, law, and medicine. (1965-66 and alternate years.)

- 263 *Culture Contact and Change* (3)

Western impact on non-Western cultures. The workings and the processes of social change as variant cultures and ethical systems interact. (1964-65 and alternate years: fall—as arranged.)

- 265 *Cultural Ecology* (3)

A cross-cultural examination of the relationship of technology to the natural world. (1965-66 and alternate years.)

Campbell

- 285-86 *Research in Anthropology* (arr.)
(Academic year—as arranged.)

The Staff

- 289-90 *Thesis* (3-3)

(Academic year—as arranged; summer 1964.)

The Staff

Spanish

See "Romance Languages and Literatures"

Speech*

Professors L. P. Leggett (Chairman), C. W. Pettit (Director of Speech Clinic), G. F. Henigan, Jr. (Director of Forensics), E. L. Stevens

Professorial Lecturers Zelda Fichandler, Edna Monsees

Associate Professor Lee Bielski

Associate Professorial Lecturers Zelda Kosh, W. J. Elsen, S. L. Berlinsky, Edwin Shutts, Frances Henry

Assistant Professors K. R. Sanders, R. A. Honeygosky

Lecturers Edith Surry, A. A. Nilles, Florence Lowndes, E. I. Shook

Associates Joan Regnell, Lois Richards, Ruth Cox

Bachelor of Arts with a major in Speech (Departmental). Prerequisite: the Arts and Letters curriculum, page 70, including Speech 1, 2, 11, 32.

* The Staff of Instruction is for the academic year 1963-64

Required: the general requirements, see pages 76-80, including the passing of a speech proficiency test early in the program; Speech 101, 121, 154, 171; and a minimum of twelve additional hours in second group courses in the speech arts or speech science, as approved by the adviser.

American Thought and Civilization 101 *American Civilization* is recommended as a senior year elective for Speech majors.

Bachelor of Arts with a major in Dramatic Art (Departmental).—Prerequisite: the Arts and Letters curriculum, page 70, including twelve hours in the basic courses in speech and six hours in English 51-52, 71-72, or 91-92.

Required: the general requirements, pages 76-80, including the passing of a speech proficiency test early in the program. Speech 101-2, a minimum of nine additional hours in speech arts in the Speech Department and nine hours in dramatic literature in the English Department, as approved by the adviser.

American Thought and Civilization 101 *American Civilization* is recommended as a senior year elective for Dramatic Art majors.

Master of Arts in the field of Speech Rehabilitation.—Prerequisite: the degree of Bachelor of Arts with a major in Speech from this University, or the equivalent.

Required: the general requirements, pages 83-85.

Master of Fine Arts in the field of Dramatic Art.—Prerequisite: the degree of Bachelor of Arts from this University, or the equivalent.

Required: the general requirements, see pages 83-85, twelve to eighteen hours of second and third group courses in drama and dramatic literature offered on campus, and six to twelve hours in theater offered at the Arena Stage. For detailed information, consult the Chairman of the Department.

Bachelor of Arts in Education with a teaching field in Speech.—Prerequisite: the Education curriculum, page 72.

Required: the Speech option and the professional courses listed in the School of Education Catalogue.

FIRST GROUP

A Speech Clinic

Pettit, Horevsky

Individual or group lessons, without academic credit, for such speech difficulties as larynx, cleft palate, articulatory problems, and stuttering. Fee: for individual lesson, \$7; for group lesson, \$4. (Academic year—as arranged; summer 1964.)

B.C. American Speech for Foreign Students (3-3)

Bielski

Class limited to foreign-born students. Instruction in the formation of the sounds of spoken English, with emphasis on rhythm and inflection. The International Phonetic Alphabet is used. Recording fee, \$5 a semester. (Academic year—day and evening; summer 1964.)

1 Effective Speaking (3)

The Staff

Preparation and delivery of extempore speeches, developing confidence and poise, body and voice control; selecting and organizing material. Recording fee, \$2. (Fall and spring—day and evening; summer 1964.)

2 Persuasive Speaking (3)

Henigan, Sanders

A continuation of Speech 1, which is prerequisite, with emphasis on speech composition and elementary principles of persuasion. (Fall—day; spring—day and evening.)

11 Voice and Diction (3)

Leggett and Staff

Developing ease, naturalness, and clarity in the speaking voice. Analysis of individual voice characteristics. Phonetic approach to the study of the sounds of English, the standards of speech. Class instruction in the problems of rate, volume, pitch, and quality. Recording fee, \$4. (Fall and spring—day and evening; summer 1964.)

12 Oral Reading (3)

Leggett and Staff

Reading to others, theory and practice in the problems of interpreting the printed page.

Prerequisite: Speech 11. Recording fee, \$2. (Fall—day; spring—day and evening; summer 1964.)

SECOND GROUP

101 *Phonetics* (3)

The International Phonetic Alphabet and its applications to the student's own speech improvement; also its application to such fields as theater, public speaking, speech correction, radio, television, and foreign languages. Prerequisite: Speech 11. Recording fee, \$4. (Fall—evening.) Honeygosky

102 *Oral Interpretation of Literature* (3)

Theory and practice in the problems of communicating meaning and emotion. Selections for study include poetry, prose, and drama. Prerequisite: Speech 32. Recording fee, \$2. (Spring—day.) Leggett

111 *Effective Speech Communication* (3)

The tools and principles of effective speech communication, including practice in the organization, delivery, and the evaluation of presentations commonly encountered by professional personnel. Not open to speech majors. (Not offered 1964-65.) Elsen

121 *Group Discussion and Conference Leadership* (3)

The process of thinking and problem solving in committees and small groups, and the methods of leading discussions and conferences. Prerequisite: 6 hours of speech or the permission of the instructor. (Fall—day; spring—evening; summer 1964.) Stevens

126 *Public Discussion and Debate* (3)

Principles and types of public discussion and debate; practice in argumentative speaking on questions of current interest. Prerequisite: 6 hours of speech or the permission of the instructor. (Spring—day.) Henigan

127-28 *Advanced Debate Practice* (1-1)

Admission by permission of the instructor, after one semester of satisfactory participation in the intercollegiate debate program. This course may be repeated for a total of 4 semester hours. (Academic year—as arranged.) Henigan

133-34 *Radio and TV Broadcasting* (3-3)

A study of the development of the radio and TV industries, station organization and management, equipment, production techniques; practice in the preparation and performance of radio programs. Recording fee, \$5 a semester. (Academic year—evening.) Shook

135-36 *Radio Workshop* (1-1)

Practical work in campus radio station. (Academic year—as arranged.) The Staff

141 *Public Speaking: Advanced Forms* (3)

The preparation and presentation of speeches for formal occasions with emphasis on the psychology of the audience. Prerequisite: 6 semester hours of speech. (Fall—day.) Henigan

145 *Speech Criticism* (3)

A study of rhetorical theory with application to the criticism of representative American and British oratory. Admission by permission of the instructor. (Not offered 1964-65.) Leggett

153 *Acting* (3)

Study and practice in the fundamentals of acting technique. Prerequisite: Speech 32. Laboratory fee, \$5. (Fall—evening.) Leggett

154 *Play Production* (3)

Fundamentals of play production. Under the supervision of the instructor, students prepare one-act plays for presentation. Laboratory fee, \$5. (Spring—evening.) The Staff

155-56 *Play Production Practice* (1-1)

Practical work in theater. (Academic year—as arranged.)

- 157 *Workshop in Producing Shakespeare* (4) Chamberlain*
Participation as a company member in the Shakespeare Summer Festival production at the outdoor Sylvan Theatre on the Washington Monument grounds. Class work in the interpretation of Shakespeare culminating in a show case production. Hours arranged with Company rehearsals and performances. Registration limited. Application must be made by May 15 to the Dean of the Summer Sessions.
- 166 *History of the Theater* (3) Nilles
A general survey of the rise of the theater, the Classical, Medieval, Renaissance, later English and Continental, and the Modern theater. (Spring—evening.)
- 169 *Creative Dramatics* (3) Lowndes
A study of creative dramatics and its use as a learning tool. (Fall—evening.)
- 170 *Children's Theater* (3) Lowndes
Theory and practice in creating and producing plays for children. (Spring—evening.)
- 171 *Introduction to Speech Disorders* (3) Pettit
A survey of the disorders of speech, including symptomatology, testing, causation, and principles of therapy. (Fall—evening.)
- 171-74 *Speech Therapy* (3-3) Honeygosky
Clinical techniques and procedures involved in the correction of the disorders of speech. Prerequisite for Speech 173; Speech 171 or concurrent registration. Prerequisite for Speech 174; Speech 182 or concurrent registration and permission of the instructor. (Academic year—evening.)
- 176 *Speech, Hearing, and Language Development* (3) Henry
Study of normal speech from vegetative processes to articulation, normal development of auditory function and the emergence of language. (Spring—evening.)
- 177-78 *Clinical Practice in Speech Therapy* (1-1) The Staff
Supervised case work in remedial speech—the University Speech Clinic, Children's Hospital, District of Columbia Crippled Children's Society, and Public School system. Weekly meetings to discuss therapeutic techniques for the various speech problems. This course may be repeated for a total of 6 semester hours. Prerequisite: Speech 161, 171, 173, and permission of the instructor. (Academic year—as arranged; summer 1964.)
- 182 *Hearing Problems and the Testing of Hearing* (3) Slatts
A survey of the field of audiology with emphasis on the testing of hearing. (Fall—evening.)
- 183-84 *Clinical Practice in Hearing Therapy* (1-1) The Staff
Supervised case work with persons handicapped with hearing losses—the University Speech Clinic, the Washington Hearing Society, and Children's Hospital. Prerequisite: Speech 182 and permission of the instructor. (Academic year—as arranged; summer 1964.)

THIRD GROUP

- 251 *Rehearsal and Performance* (2 to 4) Arena Stage Staff
A course putting into practice the principles and techniques of acting through participation in play rehearsals and performances at the Arena Stage. Admission by audition or interview. (Fall and spring—as arranged.)
- 254 *Directing Problems* (2 to 4) Arena Stage Staff
Observation and participation in solving the problems involved in directing plays. Admission by interview. (Fall and spring—as arranged.)

* Application must be submitted for Summer 1964.

- 255 Techniques of Staging (2 to 4)** Arena Stage Staff
Application of theory and principles of scene design, costuming, lighting, make-up, and related stage techniques. Admission by interview. (Fall and spring—as arranged.)
- 263 Theater Management (2 to 4)** Arena Stage Staff
Theory and practice in the psychology of handling the public: promotion, box office and house management. Admission by interview. (Fall and spring—as arranged.)
- 264 Producing Problems (2 to 4)** Arena Stage Staff
Problems involved in producing community and professional theater. Admission by interview. (Fall and spring—as arranged.)
- 279 Anatomy and Physiology of Speech and Hearing (3)** Henry
Study of the gross structure of articulation, phonation, respiration, and hearing. (Fall—evening.)
- 280 Neurophysiology of Communication (3)** Henry
Study of peripheral and central nervous systems and their involvement in speech, hearing, and language. (Spring—evening.)
- 283 Advanced Audiology (3)** Shutt
Advanced problems and testing techniques in audiology. (Spring—evening.)
- 284 Dynamic Phonetics (3)** Henry
Techniques and instrumentation for examining speech. (Fall—day.)
- 285 Childhood Aphasia (4)** Monson
Designed to acquaint speech therapists and teachers of exceptional children with the McGuffin Association Method of rehabilitation; background lectures dealing with neurological, psychological, and psychiatric aspects of language disorders in children; current theories and practices in therapy. Observation and clinical practice with classroom aphasic children at the Children's Hospital School for Aphasic Children. Prerequisite: undergraduate degree in speech and hearing, special education, or allied field. (Summer 1964.)
- 286 Differential Diagnostics (3)** Pettit and Staff
Etiology for clinical observation; techniques in history taking, patient counselling, and management. (Not offered 1964-65.)
- 287-88 Seminar in Communicology (3-3)** Pettit and Staff
Extensive study of specific problems in aphasia, cleft palate, mental retardation, stuttering, and other speech disorders. (Academic year—evening; summer 1964—Speech 287 (3).)
- 294 Research in Dramatic Art (arr.)** The Staff
(Spring—as arranged.)
- 295-96 Research in Speech and Hearing (arr.)** The Staff
(Academic year—as arranged; summer 1964—Speech 295 (3).)
- 299-300 Thesis (3-3)** The Staff
(Academic year—as arranged; summer 1964—Speech 299 (3).)

RELATED COURSES IN OTHER DEPARTMENTS

- Classical Languages and Literatures 71-72, *Greek and Roman Backgrounds in Literature* (3-3)
- English 125, *Introduction to English Linguistics* (3)
- English 135-36, *Shakespeare* (3-3)
- English 175-76, *American Drama* (3-3)
- English 183-84, *The English Drama* (3-3)

English 235-36, *Studies in Shakespeare and His Contemporaries* (3-3)
 Education 134, *Student Teaching in Secondary Schools* (6 to 9)
 Education 137, *Teaching Speech* (2 to 4)
 Psychology 115, *Psychology of Language and Communication* (3)

Statistics*

Professors E. H. Johnson, H. F. Bright (*Chairman*), Solomon Kullback, Minoru Sakaguchi (*Visiting*)
 Professorial Lecturers Samuel Greenhouse, Seymour Geisser, Morton Kupperman, Ira Cisin
 Associate Professorial Lecturers Arnold Heyl, W. M. Wolman
 Assistant Professor R. E. Thomas
 Lecturers S. J. Armore, Fred Frishman, Selig Starr

Bachelor of Arts or Bachelor of Science with a major in Mathematical Statistics (Departmental).—Prerequisite: the Arts and Letters or the Science curriculum, respectively, pages 70-71, including Mathematics 23 or former 30; Statistics 91.

Required: the general requirements, pages 76-80, including Mathematics 24; Statistics 117, 118, 155, 157-58, and six additional hours of second-group Statistics courses selected with the approval of the adviser; a minimum of twenty-four semester hours of courses in this department approved by the adviser as contributing to a well-organized program. For further details, consult the adviser.

Master of Arts or Master of Science in the field of Mathematical Statistics.—Prerequisite: a Bachelor of Arts or Bachelor of Science degree, respectively, with a major in Mathematical Statistics at this University, or the equivalent.

Required: the general requirements, pages 83-85, including a thesis in Statistics and at least twelve hours to be selected from approved third-group courses in Statistics. The remaining twelve hours must be selected in consultation with the adviser.

Master of Arts in the field of Linguistics.—See pages 321-22 and the departments of Germanic Languages and Literatures and Romance Languages and Literatures.

Doctor of Philosophy.—See pages 87-95.

Bachelor of Business Administration or Master of Arts in Government with a major in Business and Economic Statistics.—See pages 74, 159-61, 168, 169-70, 179-81, 173.

FIRST GROUP†

51 *Introduction to Business and Economic Statistics* (3) The Staff
 Lecture (2 hours), laboratory (2 hours). Survey of elementary principles and procedures for presenting, analyzing, and interpreting statistical data; consideration of characteristic values; measures of variability, sampling processes, index numbers, time series analysis, and simple correlation. Prerequisite: one entrance unit in algebra. Laboratory fee, \$9. (Fall and spring—day and evening; summer 1964.)

* The Staff of Instruction is for the academic year 1963-64.

† Of first-group courses, Statistics 51, 52, and 53 are related in their subject matter, and credit hours for only one of the three may be applied toward a degree. Statistics 51 lies outside of this group, and may be taken for degree credit in combination with any one of the other three.

52 *Mathematics of Finance* (3)

Lecture (3 hours). Interest and discount, annuities, valuation of stocks and bonds, sinking funds, amortization, valuation of depletable assets, depreciation. Prerequisite: one entrance unit in algebra. (Fall and spring—evening.)

The Staff

53 *Introduction to Statistics in Psychology and Education* (3)

Lecture (2 hours), laboratory (2 hours). Sources of data, tabulation, charts and graphs, averages, dispersion, quartiles and percentiles, raw scores and derived scores, frequency distributions, reliability and validity of tests, normal curve, correlation, elementary sampling, and an introduction to estimation and tests of hypotheses. Prerequisite: one entrance unit in algebra. Laboratory fee, \$9. (Fall and spring—day and evening; summer 1964.)

The Staff

91 *Principles of Statistical Methods** (3)

Lecture (2 hours), laboratory (2 hours). Variates and attributes, averages and dispersion, frequency distributions and their characteristics, regression and correlation, statistical decision processes. Prerequisite: one entrance unit in algebra. Laboratory fee, \$9. (Fall—evening; spring—day; summer 1964.)

The Staff

SECOND GROUP

104 *Statistics in Psychology and Education* (3)

Lecture (2 hours), laboratory (2 hours). Introductory study of statistical techniques necessary for application of statistics in research problems in psychology and education. Laboratory fee, \$9. (Fall—Saturday morning; summer 1964.)

105 *Statistics in Psychology and Education* (3)

Lecture (2 hours), laboratory (2 hours). Advanced study of statistical techniques necessary for an application of statistics in research problems. Analysis of variance, correlation techniques, chi-square applications, and sampling theory. Prerequisite: Statistics 53 or 104. Laboratory fee, \$9. (Spring—Saturday morning.)

106 *Factor Analysis* (3)

Matrix theory as applied to factor analysis, introduction to the concepts of factor analysis and their utility in various phases of research. Prerequisite: Statistics 105 or the equivalent. Laboratory fee, \$9. (1965-66 and alternate years.)

107 *Statistics for Engineers* (3)

Simple probability models, discrete and continuous distributions, sampling, hypothesis testing and estimation, nonparametric tests. Emphasis on engineering applications. Prerequisite: differential and integral calculus. (Fall and spring—evening.)

The Staff

110 *Quality Control Techniques* (3)

Applications of probability and distribution theory to industrial control problems; use of quality and control charts; acceptance sampling plans; estimation of lot and process characteristics. Prerequisite: Statistics 51 or permission of instructor. (1964-65 and alternate years: spring—evening.)

The Staff

111 *Business and Economic Statistics I* (3)

Statistical processes as related to the problems of business and economic research with emphasis on decision making under conditions of uncertainty. Topics include averages, dispersion, analysis of variance, correlation, quality control, and index numbers. Prerequisite: Statistics 51 or permission of instructor. (Fall—day and evening.)

Johnson

112 *Business and Economic Statistics II* (3)

Specific problems of business and economics with statistics as a tool of analysis. Introduction to principles and use of linear programming, game theory and operations theory techniques. Study of various economic relationships, including demand, supply, cost and price functions. Prerequisite: Statistics 111 or equivalent. (Spring—day and evening.)

Johnson

* Statistics 91 is for Statistics majors. For students in engineering and in the business school, see Statistics 104 and 105.

- 117 *Analysis of Variance I* (3) Thomas
Lecture (2 hours), laboratory (2 hours). The analysis of variance to segregate factors producing significant variation; a method to estimate experimental error, multiple classifications, Latin Square, Greek-Latin Square, factorials; an introduction to model theory. Prerequisite: Statistics 91. Laboratory fee, \$9. (Fall—evening.)
- 118 *Correlation and the Chi square Test I* (3) Thomas
Lecture (2 hours), laboratory (2 hours). Regression and correlation theory; simple, partial, and multiple; nonparametric methods; analysis of correlation; contingency table analysis; tests of goodness of fit. Prerequisite: Statistics 91. Laboratory fee, \$9. (Spring—evening; summer 1964.)
- 122 *Forecasting Principles and Techniques* (3) Johnson
Survey and appraisal of techniques for measuring the state of business conditions and an examination of current indicators. Study of procedures for determining future values: budget requirements, price levels, or level of general business activity. Prerequisite: Statistics 51 or the equivalent. (1965-66 and alternate years.)
- 123 *Introduction to Econometrics* (3) Johnson
A basic quantitative approach to fundamental problems in economic theory involving the use of statistical processes, simple model construction, and probability considerations. Prerequisite: elementary course in Economics and Statistics. (1965-66 and alternate years.)
- 125 *Introduction to Mathematical Probability* (3) The Staff
Probability distributions, Bayes' theorem and postulate, Bernoulli's theorem and its experimental verification, mathematical expectation, laws of large numbers. Prerequisite: permission of instructor. (Fall—day; spring—evening.)
- 127-36 *Mathematical Statistics* (3-3) Kupperman
Distribution theory, sampling theory, estimation, hypothesis testing, confidence methods, regression analysis, experimental design. Prerequisite: differential and integral calculus. (Academic year—day and evening.)
- 129 *Theory of Sampling* (3) Bright
Problems of sampling and sample design. Admission by permission of the instructor. (1965-66 and alternate years.)
- 133 *Nonparametric Statistical Inference* (3) Bright
Statistical inference when the form of the underlying distribution is unknown, sign tests, rank order statistics, theory of runs, nonparametric discriminant analysis. (1965-66 and alternate years.)
- 135-40 *Mathematical Probability and Applications* (2-3) Staff
Combinatorial analysis, conditional probability and stochastic independence, probability distributions, laws of large numbers, recurrent events, random walks, Markov chains, simple time-dependent stochastic processes. Prerequisite: Statistics 135 or permission of instructor. (Academic year—evening.)
- 138 *Statistical Mathematics** (3) The Staff
Problems in statistics with the development of real variable theory necessary for their solution. Prerequisite: differential and integral calculus. (Spring—evening.)
- 139 *Statistical Mathematics** (3) The Staff
Problems in statistics with the development of complex variable theory necessary for their solution. Prerequisite: differential and integral calculus. (Fall—evening.)
- 139-41 *Reading and Research in Statistics* (act.) The Staff
(Academic year—as arranged.)
- 147 *Digital Computer Programming with Applications* (3) Bright
Lecture (2 hours), laboratory (2 hours). The use of the digital computer in statistical and other computational work. Machine language, SPS and FORTRAN programming. Prerequisite: Statistics 124 and Statistics 133 and 134, or the equivalent, are prerequisite to all third-group

* Mathematics 124 and Statistics 133 and 134, or the equivalent, are prerequisite to all third-group

gramming. Writing, debugging, and running programs on the digital computer, using the IBM 1620 in the University Computing Center. Prerequisite: permission of the instructor. Laboratory fee, \$20. (Fall and spring—day and evening; summer 1964)

THIRD GROUP*

207-8 *Operations Analysis* (3-3)

Basic concepts and techniques of operations analysis as applied to problems in business management and economic research. An introduction to the processes of linear programming, game theory, and queuing theory. Admission by permission of the instructor. (1964-65 and alternate years: academic year—day.) Bright

217-18 *Experimental Design* (3-3)

Advanced theory of the applications of the linear and other hypotheses to experimental design. (1965-66 and alternate years.)

257-58 *Advanced Mathematical Statistics I* (3-3)

Distribution functions, sequences of random variables, characteristic functions, sampling theory, linear statistical estimation. (Academic year—evening.) Kupperman

259-60 *Advanced Mathematical Probability* (3-3)

Modern theories and asymptotic laws; elementary theory of definite integration; limit theorems in probability. (1965-66 and alternate years.) Kullback

261-62 *Information Theory for Engineers* (3-3)

The elements of information theory and its statistical and probabilistic background from an elementary point of view (nonmeasure-theoretic). Measures of information, entropy, and their properties. Discrete stochastic sources, message ensembles. The transmission of information, channels, channel capacity. Encoding and decoding including error detection and correction. The fundamental theorems of information theory. (1964-65 and alternate years: academic year—day.) Kullback

263-64 *Advanced Mathematical Statistics II* (3-3)

Statistical estimation, tests of hypotheses, sequential analysis, statistical decision functions, time series, multivariate statistical theory. (Academic year—evening.) Greenhouse

265-66 *Multivariate Analysis* (3-3)

A year course: credit is not given for the first half until the second half is completed. Tests of significance, generalized variance and covariance, tests of independence, canonical and vector correlations, multivariate, normal distribution, generalized Student's ratio, problems of estimation, applications to factor analysis. (1965-66 and alternate years.) Grosser

267-68 *Characteristic Functions* (3-3)

A year course: credit is not given for the first half until the second half is completed. Fourier integrals, δ functions, inversion formulas, limit theorems, applications to the distribution problem in statistics. (1964-65 and alternate years: academic year—evening.) The Staff

269 *Sequential Testing* (3)

(1964-65 and every third year: fall—evening.) The Staff

270 *Statistical Decision Theory* (3)

(1964-65 and every third year: spring—evening.) The Staff

271-72 *Statistical Information Theory* (3-3)

A year course: credit is not given for the first half until the second half is completed. Basic concepts, definitions, and formulas of information theory; their significance and general properties. Shannon's coding theorem, channel capacity, and transmission of information; inequalities of information theory and sufficiency; applications to statistical problems of discrimination and hypothesis testing. Asymptotic distribution theory. Kullback

* Mathematics 124 and Statistics 193 and 194, or the equivalent, are prerequisites to all third group courses.

- of information; analysis of contingency tables; loss of information due to grouping and sequential analysis; comparison of experiments. (1965-66 and alternate years.)
- 273-74 Stochastic Processes (3-3)** Kullback
A year course: credit is not given for the first half until the second half is completed. Fundamental notions of stochastic processes; random walks; Markov processes; differential processes; Gaussian processes; applications. (1964-65 and alternate years; academic year—evening.)
- 295-96 Reading and Research (3-3)** The Staff
Admission by permission of the instructor. (Academic year—as arranged.)
- 297 Seminar: Problems in Mathematical Statistics (3)**
(Summer 1964.)
- 299-300 Thesis (3-3)** The Staff
(Academic year—as arranged.)

COURSES OFFERED IN SPECIAL PROGRAMS

In addition to the regular courses announced above the University offers the following courses for students enrolled in the following special programs: Navy Graduate Financial Management Program, Air Force Advanced Management Program, Engineering Administration and Health Care Administration.

- 101-2 Basic Principles of Statistical Methods (3-3)**
Variables and attributes, averages and dispersion, elementary principles of sampling, introduction to the making of statistical decisions.
- 119 The Bases of Statistical Decision Making (arr.)**
Introduction to the techniques of decision making, with emphasis on applications rather than theory. Includes: binomial distribution, normal distribution, Type I and II errors, estimation, research methodology, and problems of inference.
- 120 Principles of Statistical Analysis (3)**
Introduction to the basic concepts of statistical analysis, measures of central tendency, dispersion, normal distribution, basic statistical inference including estimation and testing hypotheses.
- 200 Managerial Statistics and Quality Control (3)**
The application of statistical principles and practices to management and quality control. Emphasis is placed on the use of statistical techniques in making management decisions, controlling quality and standardization. Prerequisite: Statistics 127 or the equivalent.

Surgery*

Professors Brian Blades (Chairman), C. T. Klopp
Clinical Professors W. S. McCune, V. M. Iovine, Alec Horwitz, G. A. Higgins, Jr.,
J. P. Adams, G. S. Letterman
Associate Professors P. C. Adkins, H. C. Pierpont

* The Staff of Instruction is for the academic year 1963-64.

Associate Clinical Professors H. L. Feffer, J. R. Thistlethwaite, Don Wenger, J. S. Neviaser, L. T. Peterson, Thomas Wielan
Assistant Professors N. P. D. Smyth, T. C. Alford, Allan Hall, Peter Kenmore
Assistant Clinical Professors J. B. Harrell, Thomas Bradley, Murdock Head, R. G. Kindred, Ernest Bray, Maxine Schurter, E. A. Gould, L. B. Burk, Jr., William Ferguson, D. C. Wherry
Associates J. J. Weinstein, K. H. Wood, Isabella Harrison, Charles Keck, J. T. Estes
Instructors P. E. Shorb, Jr., N. T. Tsangaris, A. B. Iben, E. W. Wintrey
Clinical Instructors C. D. Briggs, J. F. Conlon, D. C. Richtmeyer, Leon Gerber, A. B. Rohrbough, Jr., B. G. Brown, J. D. Hoyle, N. H. Isaacson, C. S. White, Jr., D. P. McCarty, J. M. Keshishian, R. L. Dow, L. R. Perna, T. M. Wright, J. H. Sager, Frances Brennecke, J. P. Baker, J. W. Canter, H. E. Lane, Jr., Robert Engler, Gerard Inzaghi, J. E. Peterson, Charles Rickenbach, J. R. McClelland

284 *Surgical Physiology*

A clinical and laboratory course with particular emphasis on applied physiology.
 (Spring—2 hours a week.)

323-24 *Surgical Pathology I*

Weekly conferences are held with the student group assigned to the surgical clerkship, reviewing surgical specimens. (Academic year—1 hour a week.)

373-74 *Clinical Clerkship I*

The student is assigned and required to work up thoroughly the cases for diagnosis and treatment. D. C. General Hospital. (Academic year—as arranged.)

375-76 *Outpatient Surgical Clinic*

Surgical clinic. D. C. General Hospital. (Forty hours as arranged during academic year.)

377 *Fractures and Orthopedics*

Lectures covering the field of fractures and orthopedics. D. C. General Hospital.
 (Fall—1 hour a week.)

379-80 *Lectures in Surgery*

D. C. General Hospital. (Academic year—2 hours a week.)

383-84 *Surgical Clinic*

Demonstration of various surgical diseases to the entire class. University Hospital.
 (Academic year—1 hour a week.)

473-74 *Clinical Clerkship II*

Six weeks, University Hospital; three weeks, Mt. Alto Hospital in rotation. (Academic year—)

479-80 *Surgical Staff Conferences*

University Hospital. (Academic year—W as arranged.)

483-84 *Surgical Ward Rounds*

Demonstration of various surgical diseases to fourth year clerks. University Hospital.
 (Academic year—1 hour a week.)

491 *Surgical Anatomy II*

Lectures for fourth year clerks. University Hospital. (Fall—1 hour a week for twelve weeks in rotation.)

492 *Surgical Pathology II*

A systematic study of the gross and microscopic changes in the organs and tissues commonly removed surgically. (Spring—1 hour a week.)

The Staff

Weiss

The Staff

The Staff

The Staff

The Staff

Blades

The Staff

The Staff

Blades

University Hospital

Horwitz and Staff

Newman

Urology *

Clinical Professors L. R. Culbertson (*Chairman*), E. E. Ferguson

Associate Clinical Professors W. D. Jarman, F. T. Reuter

Assistant Clinical Professor Gilbert Ouenberg

Associates G. R. MacDonald, H. A. Goldberg

Clinical Instructors H. D. Wolff, Jr., H. P. Dorman, W. D. Oldham, John Kenealy, F. P. Charamonte, Gyorgy Dudas-Gyorki, H. J. Klapproth, R. C. Rhame, R. E. Ware

495-96 Clinic

The Staff

Clinical teaching and demonstrations on the care of urological patients with special emphasis on the pre- and post-operative management. Operative clinics and clinical teaching. D. C. General Hospital.

397 Urology

The Staff

Lectures covering the entire field of urology including diagnosis, treatment, and morbid pathology. (Fall—1 hour a week.)

495-96 Clinic

The Staff

Clinical demonstrations, teaching in the University Clinics, and urological X-ray conferences, with special attention given to diagnostic procedures. University Hospital. Three hours a week, in rotation, as arranged during academic year.)

Zoology *

Professors I. B. Hansen (*Chairman*), Edith Mortensen, S. C. Munson, A. H. Desmond

Professorial Lecturer K. C. Kates

Assistant Professor B. J. Leach

Lecturer I. R. Eichheit

Bachelor of Arts or Bachelor of Science (Field of Study)—Prerequisite: the Arts and Sciences or the Science curriculum, respectively, pages 70-71, including Biology 1-2 and Chemistry 11-12.

Reported: the general requirements, pages 76-80, and the passing of the Zoology major examination at the end of the senior year. The correlated knowledge upon which the student will be examined includes the following fields: (1) classification, structure, and ecological relations of animals, both invertebrate and vertebrate; (2) embryological development and life histories of important animal types; (3) general principles of physiology, heredity, and evolution; (4) the development of biological principles, hypotheses, and theories as revealed in the study of the history of zoology.

Bachelor of Arts or Bachelor of Science with a major in Biology (Departmental)—This undergraduate major may be arranged in consultation with the Department of Biology. Prerequisite: the Arts and Sciences or the Science curriculum, respectively, pages 70-71, including Biology 1-2, or the equivalent.

Reported: in addition to the general requirements, pages 76-80, a minimum of twenty

* The Staff of Instruction is for the academic year 1963-64.

four semester hours of second group courses which should include at least six hours in Botany, six in Zoology, and six in interdepartmental courses.

Master of Arts or Master of Science in the field of Zoology.—Prerequisite: the equivalent of a Bachelor of Arts or Bachelor of Science degree, respectively, from this University with a major in Zoology or Biology.

Required: the general requirements, pages 83–85.

Master of Arts or Master of Science in the field of Biology.—This interdepartmental field may be arranged in conjunction with the Department of Botany. Prerequisite: the equivalent of a Bachelor of Arts or Bachelor of Science degree, respectively, from this University with a major in Zoology, Botany, or Biology.

Required: the general requirements, pages 83–85.

Doctor of Philosophy (in a field of Zoology or Biology).—See pages 87–95.

Bachelor of Arts in Education with a teaching field in Biology.—Prerequisite: the Education curriculum, page 72.

Required: the Biology option and the professional courses listed in the School of Education Catalogue.

BIOLOGY

FIRST GROUP

1–2 *Introductory Biology** (4–4)

An interdepartmental course. Lecture (2 hours), laboratory (4 hours). This course is designed to provide the nonscience student with an understanding of the life sciences and to serve as a basis for those who may wish to continue in some aspect of biology. It is the introductory course leading to all second- and third-group courses in botany and zoology, and is taught jointly by the staff members of the two departments. Designed to be taken in either sequence; students may be registered for either 1 or 2 at the beginning of the academic year, depending on laboratory space available. Material fee, \$10 a semester. (Biology 1—Plant Sciences (4): fall and spring—day and evening; summer 1964. Biology 2—Animal Sciences (4): fall and spring—day and evening; summer 1964.)

The Staff

ZOOLOGY

SECOND GROUP

101–2 *Invertebrate Zoology* (3–3)

Lecture (1 hour), laboratory (4 hours). A systematic study of invertebrate forms, including the morphology, physiology, classification, life histories, and phylogenetic relationships. Material fee, \$8 a semester. (1964–65: academic year—day; 1965–66: academic year—evening.)

Mortenson

103–4 *Comparative Vertebrate Anatomy* (3–3)

Lecture (1 hour), laboratory (4 hours). Lectures on the organ systems of the vertebrates, laboratory dissections of types. Material fee, \$11 a semester. (1964–65: academic year—day and evening; 1965–66: academic year—day.)

Leach

108 *Organic Evolution*† (3)

Theories of organic evolution and present ideas on the principle lines of development in the plant and animal kingdoms; review of the contributions to an understanding of the mechanisms involved in this process. (1964–65: spring—evening; 1965–66: spring—day.)

Munson

* Biology 1–2 is prerequisite to all second-group courses in Zoology, except by permission of the instructor.

† An interdepartmental course offered by the departments of Botany and Zoology. Students may register in either department.

115-16 *Cytology** (3-3)

Lecture (1 hour), laboratory (4 hours). The morphological and physicochemical properties of plant and animal cells and their components. Preparation of material for study. Prerequisite: one year of chemistry and two years of biological sciences. Material fee, \$11 a semester. (Academic year—day.)

127 *Genetics** (3)

Stewart

A lecture course in which the general principles are illustrated with specific examples of inheritance in plants and animals, including man. (Fall—evening; 1964 and alternate summers.)

139-40 *Cell Physiology** (3-3)

Shropshire, Weintraub

(Zoology 139-40 replaces former 130)

The fundamental physiology of protoplasm. Prerequisite: Chemistry 12. Students who received credit for Zoology 130 prior to 1964-65 may register for the second semester of Zoology 139-40. (Academic year—evening; 1965 and alternate summers.)

145 *Introduction to Vertebrate Embryology* (3)

Hansen

Lecture (1 hour), laboratory (4 hours). Origin and early development of the individual, formation of organ systems. Emphasis on the frog, chick, and pig, with reference to the human embryo. Material fee, \$11. (1964-65 and alternate years: fall and spring—day; 1965-66 and alternate years: fall and spring—day and evening; summer 1964.)

146 *Histology* (3)

Desmond

Lecture (1 hour), laboratory (4 hours). Introduction to the microscopical anatomy of normal tissues and organs. Material fee, \$11. (1964-65 and alternate years: fall and spring—day; 1965-66 and alternate years: fall and spring—day and evening.)

152 *Protozoa* (3)

Mortensen

Lecture (1 hour), laboratory (4 hours). Introduction to the protozoa: classification, life histories, and physiology, with special emphasis on free-living types. Material fee, \$8. (1965-66 and alternate years: spring—evening.)

155 *Parasitology* (3)

Kates

Lecture (1 hour), laboratory (4 hours). An introduction to the study of animal parasitology, with a survey of parasitic types from the protozoa through arthropods. Material fee, \$11. (1965-66 and alternate years: fall—evening.)

157 *Comparative Endocrinology* (3)

Leach

A study of the endocrine systems of the vertebrate classes. Differences and similarities between endocrine mechanisms of fish, amphibians, reptiles, birds, and mammals will be included to illustrate broad trends of evolution in endocrine systems. (Fall—day.)

161 *Entomology* (3)

Munson

Lecture (1 hour), laboratory (4 hours). A study of the elementary morphology, physiology, and ecology of insects, with an introduction to the taxonomy of the more important groups. Material fee, \$8. (1965-66 and alternate years: fall—evening.)

162 *Insect Physiology* (3)

Munson

Lectures and laboratory work on the physiology of insects. Admission by permission of the instructor. Material fee, \$11. (1965-66 and alternate years: spring—evening.)

171-72 *Special Problems* (3-3)

The Staff

Written approval of the instructor is required. Material fee, \$11 a semester. (Academic year—as arranged.)

199-200 *Prseminar* (3-3)

The Staff

Designed to correlate and supplement the work of Zoology majors. (Academic year—day and evening.)

* An interdisciplinary course offered by the departments of Botany and Zoology. Students may register in either department.

THIRD GROUP

201-2 Seminar: Cytology* (3-3)

A study of the current literature in experimental cytology. (Academic year—evening.)

204 Seminar in Invertebrate Zoology (3)

A study of original publications on hormones of invertebrate animals. alternate years: spring—evening.)

Mortensen
(1964-65 and

214 Advanced Invertebrate Zoology (3)

Lectures and laboratory work on problems in invertebrate physiology. Prerequisite: Zoology 101-2 or the equivalent. Material fee, \$8. (Not offered 1964-65)

Mortensen
Prerequisite:

222 Seminar: Vertebrate Reproduction (3)

Lectures and class reports on the endocrinology of reproduction. The primary emphasis will be placed on recent literature and unsolved problems pertaining to this subject. (1965-66 and alternate years: spring—evening.)

Leach

247-48 Morphogenesis (3-3)

Lectures and class reports on experimental morphology. Prerequisite: Zoology 103-4 or the equivalent. (1964-65 and alternate years—evening.)

Hansen

251 Seminar in Vertebrate Zoology (3)

A study of current publications in the field of histophysiology. alternate years: fall—evening.)

Desmond
(1965-66 and alter-

295-96 Research (arr.)

Investigation of special problems. (Academic year—as arranged; summer 1964.)

The Staff
1964.)

299-300 Thesis (3-3)

(Academic year—as arranged; summer 1964.)

The Staff

* An interdisciplinary course offered by the departments of Botany and Zoology. Students need to enter in either department.

The Board of Trustees of The University

Thomas Henry Carroll, B.S., M.B.A., D.C.S., LL.D., LL.D., *President of the University, ex officio*

Newell Windom Ellison, *Chairman*
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1964

George A. Butler, LL.B.
Robert Vedder Fleming, LL.D.,
Chairman Emeritus
Brooks Hays, A.B., LL.B., LL.D.
Joseph D. Hughes, B.S., LL.B., LL.M.,
LL.D.
Franklin Jerome Lunding, LL.B., LL.D.

Edward Kirtick Morris, LL.D.
Godfrey Leon Munter, A.B., LL.B., LL.D.
Charles Emory Phillips, LL.B., LL.M.
*Frederick A. Reuter, M.D.
*James Cornelius Van Story, Jr., A.M.
Watson W. Wise, Ph.D.

1965

Walter Thomas Buchanan, Jr., LL.D.
Florence Cassin Carson, A.M., J.D.
Mrs. Jacqueline Cochran, D.H.L., LL.D.,
Sc.D.
R. Roy Dunn
Mrs. Katherine Graham, A.B.
Mrs. Edgar Hoover, LL.M., LL.D.

Frank Atherton Howard, B.S. in M.E.,
LL.B., Sc.D.
Carleton D. Smith
Shelby William Sowers, A.B., LL.D.
L. Curtis Stone, Ph.D., LL.D.
*Frank Harvey Westell, A.B., LL.B.
*John Johnston Wilson, LL.B.

1966

Walter Maximilian Bastian, LL.B.,
LL.D.
Leonard Carmichael, Ph.D., Sc.D., LL.D.,
LL.D., LL.D., D.C.L.
Newell Windom Ellison, A.B., LL.B.,
LL.D.
Alfred Henry Lawson, LL.B., LL.D.
Mrs. Kenneth McKee

Benjamin Mosby McKelway, LL.D.
James Mallard Mitchell, A.M.
Nelson Paul Poynter, A.M., LL.D.
*Charles Sylvanus Rhyne, LL.B., D.C.L.,
LL.D.
Lewis L. Stone, Sc.D., LL.D., LL.D.
James Russell Wingate, LL.D.
*James Orr Wright, B.S., LL.B.

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LL.D.Hilvases S. Grant, 3d, B.S., Graduate
United States Engineers School,
LL.D., Sc.D.Gilbert Grosvenor, A.M., LL.D., Litt.D.,
Sc.D.

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- JOHN CORBON BOSWELL, Ed.D., *Assistant Professor of Education*
- DEBBY BOTWIN, Ed.D., *Professor of Education*
- JOHN HENRY BOUNA, A.B., M.D., *Associate in Psychiatry*
- MAXWELL BOVERMAN, A.B., M.D., *Clinical Instructor in Psychiatry*
- ROBERT BOYD, A.B., *Visiting Associate Professor of International Affairs, Institute for Sino-Soviet Studies*
- IRVING BRACKIN, M.F.A., *Associate Professorial Lecturer in Business Administration*
- THOMAS BRADLEY, A.B., M.D., *Assistant Clinical Professor of Surgery*
- RUSSELL BRADY, JR., M.D., *Professorial Lecturer on Biochemistry of the Brain*
- FREDERICK BURTHAM BRANDE, B.S., M.D., *Associate in Surgery*
- EDWARD HOWARD BRAUN, A.M., *Assistant Professor of Engineering and Applied Science*
- ERNEST BRAY, M.S., M.D., *Assistant Clinical Professor of Orthopaedic Surgery*
- ARTHUR SEYMOUR BRICHER, Ph.D., *Assistant Professor of Biochemistry*
- EMORY BRIMMER, M.D., *Associate in Surgery*
- LAMAR THOMAS BRUNNAN, A.B., M.D., *Assistant Clinical Professor of Radiology*
- FRANCES ELIZABETH BRUNNECKI, A.B., M.D., *Clinical Instructor in Orthopaedic Surgery*
- ALEXANDER BRISLOW, M.S., M.D., *Assistant Professor of Pathology*
- JOHN WITHEROW BRUWER, Ph.D., *Professor of International Law*
- GRONSHAW DOUGLAS BRIGGS, B.S., M.D., *Clinical Instructor in Surgery*
- ARLE BRIGHAM, A.B., M.D., *Associate in Medicine*
- ALBERT SEYMOUR BRIGHT, A.B., M.D., *Clinical Instructor in Obstetrics and Gynecology*
- HAROLD FRIEDRICH BRECHT, Ph.D., *Professor of Statistics*
- ALFRED BRIGGIO, M.D., *Associate Clinical Professor of Medicine; Associate University Physician*
- WARREN DANIEL BRILL, B.S., M.D., *Assistant Clinical Professor of Medicine*
- ROBERT CARLYLE BRINACONDE, M.B.A., *Professorial Lecturer in Accounting*
- CARLTON JOHN BRINKMAN, A.B., *Lecturer in Business Administration*
- BERNARD BERYL BRODIE, Ph.D., *Professorial Lecturer in Pharmacology*
- BERNARD BROWN, A.B., M.P.H., M.D., *Associate in Psychiatry*
- RICHARD GIBSON BROWN, M.D., *Clinical Instructor in Surgery*
- CRAWFORD SOUTHWELL BROWN, A.B., M.D., *Assistant Clinical Professor of Dermatology*
- *DAVID SPRINGER BROWN, Ph.D., *Professor of Public Administration*
- HARLA BROWN, M.D., *Clinical Professor of Medicine*
- JAMES GRADY BROWN, A.M., Ed.D., *Associate Professor of Business Administration; Assistant Dean (Administration) of the College of General Studies*

* On sabbatical leave 1964-65.

- KENNETH BROWN, Ph.D., *Professorial Lecturer in Education*
 RAYMOND NATHAN BROWN, M.D., *Clinical Instructor in Anatomy*
 ROBERT GUY BROWN, Ph.D., *Associate Professor of Sociology*
 STEPHEN JEFFERY BROWN, Ph.D., *Associate Professor of English Literature*
 THOMAS HAYWARD BROWN, *Associate Professorial Lecturer in Law*
 THOMAS McPHERSON BROWN, A.B., M.D., *Eugene Meyer Professor of Medicine*
 WILLIAM WALTER BROWNHOLTZ, A.B., C.P.A., *Associate Professorial Lecturer in Accounting*
 HENRY GASSON BRYAN, A.B., M.D., *Clinical Instructor in Dermatology*
 GEORGE CUMMING BUCHANAN, A.B., M.D., *Associate in Medicine*
 JOHN ROBERT BUCHHEIT, M.S., *Associate Professorial Lecturer in Zoology*
 JAMES LEONARD BUCKLER, A.M., *Professorial Lecturer in Accounting*
 DEXTER MEANS BULLARD, Ph.B., M.D., *Clinical Professor of Psychiatry*
 MAURICE BENJAMIN BURG, A.B., M.D., *Associate in Physiology*
 LLOYD BYRON BURK, JR., A.B., M.D., *Assistant Clinical Professor of Surgery*
 MARIAN BURKE, A.B., Ed.M., *Studio Lecturer in Applied Music (Piano)*
 ARTHUR EDWARD BURNS, Ph.D., *Professor of Economics; Dean of the Graduate Council*
 JAMES THEODORE BURNS, M.D., *Assistant Clinical Professor of Medicine*
 WILLIAM WESLEY BURR, JR., Ph.D., M.D., *Professorial Lecturer on Isotopes*
 BOYD LEE HURRIS, B.S., M.D., *Associate in Psychiatry*
 ELIZABETH BERTNER, A.M., *Professor of Physical Education for Women*
 STEWART WILLIAM BUSH, B.S., M.D., *Associate Professor of Medicine*
 ROBERT NEIL BUTLER, A.B., M.D., *Associate in Psychiatry*
 CESAR AUGUSTO CACERES, B.S., M.D., *Assistant Professor of Medicine*
 PAUL CALABRISI, Ph.D. (Cantab.), *Professor of Anatomy*
 JUAN CALATAYUD, M.D., *Assistant Professor of Medicine*
 WILLARD EDMUND CALDWELL, Ph.D., *Professor of Psychology*
 DWIGHT CALLAGAN, B.S., M.D., *Associate Clinical Professor of Obstetrics and Gynecology*
 DALE CORBIN CAMERON, A.B., M.D., M.P.H., *Clinical Professor of Psychiatry*
 JOHN LANSING CAMERON, A.M., *Associate Professorial Lecturer in Education*
 ELWOOD WILBUR CAMP, A.B., M.S.S.W., M.H.A., *Associate Professor of Hospital Administration*
 JAMES VERNON CAMP, A.M., *Associate in Physical Education for Men; Head Football Coach*
 COLIN MACLENNAN CAMPBELL, A.B., LL.B., C.L.U., *Associate Professorial Lecturer in Business Administration*
 JOHN MARTIN CAMPBELL, Ph.D., *Associate Professor of Sociology and Anthropology*
 *ROBERT DALE CAMPBELL, Ph.D., *Professor of Geography*
 JEROME WOLF CANTER, A.B., M.D., *Associate in Surgery*
 DAVID ROLAND CARLSON, B.S., M.D., *Clinical Instructor in Obstetrics and Gynecology*
 GERALD VINCENT CARROLL, Ph.D., *Associate Professor of Geology*
 THOMAS HENRY CARROLL, B.S., M.B.A., D.C.S., LL.D., LL.M., *Professor of Economic Development and Administration; President of the University*
 THOMAS PATRICK CARROLL, JR., B.C.E., *Instructor in Engineering and Applied Science*
 WESLEY THOMAS CARROLL, Ph.D., *Professor of Education*
 WILLIAM ROBERT CARROLL, Ph.D., *Professorial Lecturer on Proteins*

* On leave of absence 1964-65.

- GEORGE DAVIS CARY, B.S., LL.B., LL.M., *Associate Professorial Lecturer in Law*
- MARIE MULLANEY CASSIDY, Ph.D., *Visiting Assistant Professor of Physiology*
- RICHARD BERNARD CASTELL, A.B., M.D., *Assistant Clinical Professor of Medicine; Director of Health Services; University Physician*
- HENRY MARCELLES CATHEY, Ph.D., *Associate Professorial Lecturer on Plant Physiology*
- WILLIAM PAXSON CHAFFANT, JR., M.D., *Assistant Clinical Professor of Ophthalmology*
- FREDERIC DUNBAR CHAPMAN, A.B., M.D., C.M., *Associate in Medicine*
- GEORGE ALLYN CHAPMAN, B.S., M.D., *Associate in Medicine*
- JACOB BERNARD CHASSAN, Ph.D., *Assistant Clinical Professor of Psychiatry (Biostatistics)*
- FRANCIS PAUL CHIAMARONTE, A.B., M.P.H., M.D., *Clinical Instructor in Urology*
- PAUL CHODOFF, A.B., M.D., *Associate Clinical Professor of Psychiatry*
- CHARLES LOUIS CHRIST, Ph.D., *Professorial Lecturer in Geology*
- JOHN BERT CHRISTENSEN, Ph.D., *Associate Professor of Anatomy*
- FRANCIS CHUCKER, M.D., *Clinical Instructor in Medicine*
- LEOYD EUGENE CHURCH, D.D.S., Ph.D., *Lecturer in Anatomy*
- JOHN CHINE, JR., A.B., J.D., *Assistant Professor of Law, Graduate School of Public Law; Assistant Director of Government Contracts Program*
- IRA HERBERT CISIN, Ph.D., *Professorial Lecturer in Statistics*
- JEANETTE GAYLE CLAPP, M.S., *Assistant Professor of Physical Education for Women*
- HAROLD WILLIAM CLARK, JR., Ph.D., *Assistant Research Professor of Medicine (Biochemistry)*
- HUGH CAMMIE CLARK, A.B., M.D., *Associate in Pediatrics*
- CARL WILLIAM CLEWLOW, A.M., *Professorial Lecturer in Business Administration*
- JAMES CLIFFORD, M.D., *Clinical Instructor in Medicine*
- THOMAS AKROYD CLINGAN, JR., B.S., J.D., *Assistant Professor of Law*
- DANIEL RAYMOND CLOUTIER, M.P.A., Ph.D., *Associate Professor of Public Administration*
- LOUISE GEORGE CLUBB, Ph.D., *Assistant Professor of English*
- WILLIAM GRAHAM CLUBB, Ph.D., *Professor of French*
- CHARLES SEYMOUR COAKLEY, M.D., *Professor of Anesthesiology*
- ROBERT NORWOOD COALE, B.S., M.D., *Associate in Medicine*
- JAMES HAROLD COBERLY, Ph.D., *Professor of American Literature*
- GEORGE JOEL COHEN, M.D., *Associate in Pediatrics*
- MANUEL FREDERICK COHEN, B.S., LL.B., *Professorial Lecturer in Law*
- SHELDON STANLEY COHEN, A.B., J.D., *Professorial Lecturer in Law*
- HOWARD DAVID COHN, B.S., M.D., *Clinical Instructor in Medicine*
- VICTOR HUGO COHN, JR., Ph.D., *Assistant Professor of Pharmacology*
- CHARLES WILLIAM COLE, Ph.D., *Professor of American Literature; Dean of the Summer Sessions*
- ALLAN BERTRAM COLEMAN, M.D., *Assistant Clinical Professor of Pediatrics*
- MARY ELLEN COLEMAN, A.M., *Associate Professor of Education; Director of the Reading Center*
- FREDERICK COLLIER, B.S., *Associate in Geology*
- LEONARD CORNELIUS COLLINS, A.B., LL.M., *Professorial Lecturer in Business Administration*

* On leave of absence 1964-65

* On sabbatical leave spring semester 1964-65

- ROBERT RUDOLPH COLUMBUS, Ph.D., *Assistant Professor of English Literature*
 WILLIAM JOHN CONDELL, JR., Ph.D., *Lecturer in Physics*
 JOSEPH FRANCIS CONLON, D.D.S., *Clinical Instructor in Dental Surgery*
 GEORGE FREDERICK CONNER, M.B.A., *Assistant Professor of Business Administration*
 AUDREY CONNOR, A.B., M.D., *Clinical Instructor in Medicine*
 CHARLES BARRIE COOK, B.S., M.D., *Assistant Clinical Professor of Pathology*
 DONALD MAURICE COOK, A.B., M.H.A., *Assistant Professor of Health Care Administration*
 CHARLES DAVID COOPER, A.B., M.D., *Assistant Clinical Professor of Medicine*
 WILLIAM HURLBURT COOPER, A.B., M.D., *Clinical Instructor in Obstetrics and Gynecology*
 BERNARD ROBERT COOPERMAN, A.B., M.D., *Clinical Instructor in Medicine*
 MILTON CORN, B.S., M.D., *Assistant Professor of Medicine*
 FRANK DUNCAN COSTENBADER, B.S., M.D., *Clinical Professor of Ophthalmology*
 JOHN WALKER COUGHLAN, B.Comm., Ph.D., *Associate Professor of Accounting; Coordinator of Programs in Accounting*
 HUGH BAKER COX, A.B. (Oxon.), B.C.L., *Professorial Lecturer in Law*
 *PAUL ARTHUR CRAFTON, Ph.D., *Professor of Engineering and Applied Science*
 LOUIS ALECK CRAIG, JR., A.B., M.D., *Assistant Clinical Professor of Medicine*
 MILTON CRANE, Ph.D., *Professor of English Literature*
 ELIZABETH AMANDA CRISP, B.S., M.D., *Clinical Instructor in Obstetrics and Gynecology*
 JEREMIAH KEITH CROMER, M.D., *Associate Clinical Professor of Obstetrics and Gynecology*
 ROBERT EMMET CRONIN, M.S., *Associate Professor of Engineering and Applied Science*
 JACK CROWELL, B.S., M.D., *Assistant Clinical Professor of Medicine*
 BEVERLY ANDERSON CRUMP, B.S., Ed.M., *Associate Professorial Lecturer in Education*
 LEON RICHARD CULBERTSON, B.S., M.D., *Clinical Professor of Urology*
 EDWARD EARL CUNNINGHAM, M.S., M.D., *Clinical Instructor in Obstetrics and Gynecology*
 LEON CYTHYN, M.D., *Instructor in Pediatric Psychiatry*
 GORDON WILFORD DAINLEY, JR., A.B., M.D., *Clinical Instructor in Pediatrics*
 JAMES EDWARD DAVY, JR., Ed.B., *Lecturer in Business Administration*
 ABRAHAM WOLFFE DANISH, A.B., M.D., *Assistant Clinical Professor of Medicine*
 DWIGHT DAVID DARLAND, A.M., Ed.D., *Professorial Lecturer in Education*
 DAVID STANLEY DAVIS, A.B., M.D., *Assistant Clinical Professor of Medicine*
 JOHN TAIT DAVIS, Ph.D., *Associate Professor of Geography*
 LEE WASHINGTON DAVIS, A.B., M.D., *Clinical Instructor in Obstetrics and Gynecology*
 RICHARD LAVERN DAVIS, A.B., M.D., *Clinical Instructor in Pathology*
 WILLIAM COLUMBUS DAVIS, Ph.D., *Professor of Latin American History*
 WILLIAM JOSEPH GRAHAM DAVIS, A.B., M.D., *Assistant Clinical Professor of Ophthalmology*
 CLARKE DAVISON, Ph.D., *Professor of Pharmacology*
 JAMES FORRESTER DAVISON, A.B., LL.B., LL.M., S.J.D., *Professor of Law*
 †RODOLPH HOLLETT DAVISON, Ph.D., *Professor of European History*
 ROBERT DAY, A.B., M.D., *Assistant Clinical Professor of Ophthalmology*
 EDWIN JUSTIN DEALY, A.B., M.D., *Clinical Instructor in Anesthesiology*

* On sabbatical leave fall semester 1964-65

† On sabbatical leave 1964-65

- VINCENT JAMES DEANGELIS, B.S. in P.E., A.M. in Ed., *Professor of Physical Education for Men*
- FREDERICK DECK, B.S., M.D., *Clinical Instructor in Radiology*
- ROBERT LYLE DEDRICK, M.S. in Eng., *Associate Professor of Engineering and Applied Science*
- STEPHEN WILLIAM DEJTER, A.B., M.D., *Associate in Medicine*
- ANATOLE STEPHEN DEKABAN, M.D., Ph.D., *Assistant Clinical Professor of Neurology*
- DERMOT JOSEPH DEMIS, Ph.D., M.D., *Associate in Dermatology*
- FRANK LANDT DENNIS, A.B., LL.B., *Lecturer in Journalism*
- †LOUIS DE PIAN, Ph.D., *Professor of Applied Science*
- ALTON HAROLD DESMOND, Ph.D., *Professor of Zoology*
- HARRY GRUBB DETWILER, Ed.D., *Associate Professor of Education*
- WARREN PEYTON DEWITT, B.S., *Lecturer in Mathematics*
- DANIEL DEYKIN, A.B., M.D., *Clinical Instructor in Medicine*
- HERBERT HAROLD DIAMOND, M.D., *Clinical Instructor in Pediatrics*
- OSCAR CHARLES DISLER, A.M., *Associate Professorial Lecturer in Accounting*
- *ROBERT CALLOWAY DIXON, JR., Ph.D., LL.B., *Professor of Law*
- RICHARD FRANCIS DOBBINS, A.B., M.D., *Associate Clinical Professor of Radiology*
- ROBERT JAY DOBROW, A.B., M.D., *Clinical Instructor in Medicine*
- †JAMES CARLTON DOCKERAY, Ph.D., *Professor of Finance; Assistant Dean (Programs in Government and Business) of the School of Government, Business, and International Affairs; Coordinator of Program, Industrial College of the Armed Forces, Washington, D. C.*
- LOYD EDWARD DODD, A.M., *Instructor in English*
- SAMUEL MAYER DODGE, A.M., M.D., *Clinical Professor of Obstetrics and Gynecology*
- CHARLOTTE PATRICIA DONLAN, A.B., M.D., *Assistant Clinical Professor of Radiology*
- ORVILLE WRIGHT DONNELLY, M.S., M.D., *Associate in Medicine*
- WILLIAM DORFMAN, Ph.D., *Professorial Lecturer in Applied Science*
- HAMILTON PEACOCK DORMAN, B.S., M.D., *Clinical Instructor in Urology*
- JESSE FRANK DOUBLEDAY, A.M., *Associate Professorial Lecturer in Business Administration*
- ROBERT LEROY DOW, A.B., M.D., *Clinical Instructor in Orthopedic Surgery*
- DANIEL MACCABAEUS DRIBIN, Ph.D., *Professorial Lecturer in Mathematics*
- ALAN MCCULLOCH DRUMMOND, A.B., M.D., *Assistant Clinical Professor of Psychiatry*
- JOHN WILLIAM DUCHIEZ, M.D., *Associate Clinical Professor of Medicine*
- GYORGY LUDAS-GYORKI, M.D., *Clinical Instructor in Urology*
- VIRGINIA DUGGINS, A.M., M.D., *Associate in Neurology*
- LEONARD J DUHL, A.B., M.D., *Assistant Clinical Professor of Psychiatry*
- WEAVER WHITE DUNNAN, A.B., LL.B., *Professorial Lecturer in Law*
- ROBERT EDWARD DUPREY, B.S., M.D., *Assistant Clinical Professor of Ophthalmology*
- WILLIAM RANKIN DURYEE, Ph.D., *Research Professor of Experimental Pathology*
- JAMES ALBERT DUSBAHEK, M.D., *Associate Clinical Professor of Obstetrics and Gynecology*
- ROBERT FRANCIS DYER, A.B., M.D., *Assistant Clinical Professor of Medicine; Associate University Physician*
- DOLAN FAIGLE, JR., Ph.D., *Assistant Professor of Chemistry*
- ROY BRANDON EASTIN, Ph.D., *Professor of Business Administration*
- HENRY DUNLOP ECKER, B.S., M.D., *Associate Clinical Professor of Medicine*

* On leave of absence 1964-65.

† On sabbatical leave spring semester 1964-65.

- JOANNE WINSLOW ECONOMON, B.S., M.D., *Clinical Instructor in Ophthalmology*
 GEORGE THEMISTOCLES ECONOMOS, B.S., M.D., *Associate in Medicine*
 ROY EDELFELT, Ed.D., *Professorial Lecturer in Education*
 DAVID EDEN, A.B., M.D., *Assistant Clinical Professor of Psychiatry*
 JUSTIN LINCOLN EDCURTON, A.B., LL.B., *Professorial Lecturer in Law*
 DANIEL JAMES EDWARDS, Ph.D., *Associate Professorial Lecturer in Economics*
 JOHN EFTIS, M.S. in C.E., *Assistant Professor of Applied Science*
 WILFRED RUSSELL EHRLMANTRAUT, B.S., M.D., *Assistant Clinical Professor of Medicine*
 CHURCHILL EISENHART, Ph.D., *Adjunct Professor of Applied Science*
 HOWARD EISNER, M.S., *Lecturer in Engineering*
 ROBERT WHITTINGTON ELLER, B.S., Ed.D., *Associate Professor of Education; Assistant Dean (Special Projects) of the College of General Studies*
 WILLIAM JOHN ELSER, A.M., *Associate Professorial Lecturer in Speech*
 GLORIA DONNA ENC, M.D., *Clinical Instructor in Pediatrics*
 ROBERT ENGLER, B.S., M.D., *Clinical Instructor in Orthopedic Surgery*
 WILLIAM FRANCIS ENOS, A.B., M.D., *Assistant Clinical Professor of Pathology*
 JEROME HAROLD EPSTEIN, A.M., M.D., *Assistant Clinical Professor of Medicine*
 JULIUS ROBERT EPSTEIN, M.D., *Assistant Clinical Professor of Obstetrics and Gynecology*
 RICHARD FERDINAND ERICSON, M.B.A., Ph.D., *Professor of Business Administration*
 ZEKI ERIM, A.B., M.D., *Clinical Instructor in Radiology*
 RICHARD VERNON ERKENBECK, B.S., M.D., *Clinical Instructor in Obstetrics and Gynecology*
 JAMES TILFORD ESTES, M.D., *Associate in Surgery*
 MARGARET CLARA ETHER, M.S., *Assistant Professor of Chemistry*
 CLAYTON BERNARD ETHIRIDGE, M.D., *Professor of Medicine; Director of Postgraduate Medical Education*
 GRACE ELIZABETH ORVIS EVANS, A.M., *Professorial Lecturer in Art*
 HOWARD TASKER EVANS, JR., Ph.D., *Professorial Lecturer in Geology*
 JOHN MCCALLUM EVANS, A.B., M.D., *Professor of Medicine*
 CHARLES JEROME EVERDING, M.D., *Associate in Medicine*
 THEODORE MYLES FAHNER, Ph.D., *Assistant Professor of Pharmacology*
 MARION DEES MILLER FARIS, A.B., M.D., *Associate in Radiology*
 OTIS RHANOR FARLEY, A.B., M.D., *Associate Clinical Professor of Medicine*
 JOHN ANTHONY FARRELL, M.D., *Assistant Clinical Professor of Psychiatry*
 JOSEPH FRANCIS FAZEKAS, M.D., *Associate Clinical Professor of Neurology*
 PASQUALE JOSEPH FEDERICO, A.M., LL.B., *Associate Professorial Lecturer in Law*
 HENRY LEON FEFFER, A.B., M.D., *Associate Clinical Professor of Orthopedic Surgery*
 JAMES JOSEPH FEFFER, A.B., M.D., *Clinical Professor of Medicine*
 MORRIS FEITEL, M.D., *Clinical Instructor in Pediatrics*
 WILLIAM ROBERT FELTS, JR., B.S., M.D., *Associate Professor of Medicine*
 GERALD MERVIN FENICHEL, A.B., M.D., *Instructor in Neurology*
 LEON FERBER, A.B., M.D., *Associate Clinical Professor of Psychiatry*
 EDWARD EGNER FERGUSON, M.D., *Clinical Professor of Urology*
 WILLIAM FERGUSON, B.S., M.D., *Assistant Clinical Professor of Surgery*
 ZELDA FICHANDLER, *Professorial Lecturer in Dramatic Art*
 NICOLAE FILIPESCU, Ph.D., *Assistant Professor of Chemistry*
 MILENKO FILIPOVITCH-NIKATCH, M.S., *Lecturer in Russian*

- JOHN LINCOLN FINAN, Ph.D., *Professor of Psychology*
 BEN SION FINE, M.D., *Assistant Clinical Professor of Ophthalmology*
 DANIEL FINUCANE, B.S., M.D., *Professorial Lecturer in Preventive Medicine and Community Health*
 ROBERT ANDREW FISCHER, A.B., M.D., *Clinical Instructor in Medicine*
 GERALD JOHN FISHER, A.B., M.D., *Assistant Clinical Professor of Medicine*
 LESTER WALTER FYK, M.D., *Assistant Clinical Professor of Pathology*
 MICHAEL FLEISCHER, Ph.D., *Professorial Lecturer in Geology*
 EDWARD STITT FLEMING, A.M., M.D., *Assistant Professor of Psychiatry*
 MARVIN PEACE FOOTER, A.B., M.D., *Associate in Obstetrics and Gynecology*
 CHARLES WILLIAM FOULKE, A.B., M.D., *Associate in Medicine*
 RICHARD CROSSMAN FOWLER, B.S., M.D., *Associate Professor of Medicine*
 MARY ALICE VANN FOX, A.B., M.D., *Clinical Instructor in Pediatrics*
 RAYMOND RICHARD FOX, M.S. in C.E., *Associate Professor of Engineering and Applied Science*
 JUAN REYNALDO FRAGA, M.D., *Associate in Pediatrics*
 RANDOLPH ADAMS FRANK, A.B., M.D., *Associate in Psychiatry*
 CLARENCE KENDALL FRASER, Ph.B., M.D., *Associate Clinical Professor of Obstetrics and Gynecology*
 MONROE HENRY FRIEDMAN, A.B., LL.B., LL.M., *Associate Professor of Law*
 JOHN ANDREW FREY, Ph.D., *Associate Professor of Romance Languages*
 FRIEDRICH ADOLPH FREYHAN, M.D., *Clinical Professor of Psychiatry*
 ARTHUR FRIEDMAN, A.B., M.D., *Assistant Clinical Professor of Medicine*
 IRVING FRIEDMAN, Ph.D., *Lecturer in Geology*
 JOSEPH MARSHALL FRIEDMAN, A.B., M.D., *Associate in Obstetrics and Gynecology*
 DAVID FROST, B.S., M.D., M.P.H., *Associate Clinical Professor of Preventive Medicine and Community Health*
 WILLIAM THOMAS FRYER, A.B., LL.B., J.D., *Professor of Law*
 MARVIN FUCHS, B.S., M.D., *Assistant Clinical Professor of Medicine*
 EDWARD ELIAS GAHRES, M.S., M.D., *Clinical Instructor in Obstetrics and Gynecology*
 ROBERT ELEMER GAYDUSKE, A.M., *Associate Professor of English*
 CHARLES EDWARD GALBREATH, Ph.D., *Professor of International Economics; Coordinator, Programs for the War Colleges; Coordinator, National War College Center and War College Program at the Pentagon, Washington, D. C.*
 MICHAEL GRAHAM GALLAGHER, A.B., *Assistant Professor of Accounting*
 PATRICK FRANCIS GALLAGHER, A.B., *Assistant Professor of Sociology and Anthropology*
 WILFRED ERNEST GALLINEK, A.B., M.D., *Clinical Instructor in Medicine*
 ROBERT WILLIAM GANS, A.B., M.D., *Assistant Clinical Professor of Psychiatry*
 JAMES QUINCY GANT, JR., M.S., M.D., *Clinical Professor of Dermatology*
 ROBERT NORTON GANZ, Ph.D., *Associate Professor of American Literature*
 LEROY MAXWELL GARIBELL, B.S., Captain, United States Air Force, *Assistant Professor of Air Science*
 RAYMOND LEONARD GARTHOFF, Ph.D., *Professorial Lecturer in International Affairs, Institute for Sino-Soviet Studies*
 ALEXANDER RAMSEY GASSAWAY, A.M., *Assistant Professor of Geography*
 MICHAEL CASSTEN, Ph.D., *Assistant Professor of History*
 HAROLD LORAN GEISERT, Ph.D., *Professor of Sociology and Anthropology*
 SEYMOUR GEISSER, Ph.D., *Professorial Lecturer in Statistics*
 PAUL GEEKER, A.M., *Lecturer in Economics*

LYNDALE HARPSTER GEORGE, B.S. in P.E., A.M. in Ed., A.P.C., Associate Professor of
Physical Education for Women

LEON GERBER, M.D., *Clinical Instructor in Surgery*

LILA GIERT, Ph.D., *Assistant Research Professor of Psychology*

JOHN GIANCASPRO, A.M. in Ed., *Associate Professorial Lecturer in Education*

FREDERICK HARRELL GIBBS, M.H.A., *Professor of Hospital Administration;*
Coordinator, Programs in Health Care Administration

JOSEPH GILMORE, Ph.D., *Associate in Physiology*

LEON GINTZIG, Ph.D., *Professor of Hospital Administration; Assistant Coordinator,*
Programs in Health Care Administration

EUGENE SOLOMON GLADSDEN, B.S., M.D., *Associate Clinical Professor of Medicine*

EZRA GLASER, A.M., *Professorial Lecturer in Applied Science*

LOUIS HARRY GLASSMAN, D.Sc., *Associate Professor of Engineering and Applied*
Science

WILLIAM BAINBRIDGE GLEW, M.D., M.S., *Associate in Ophthalmology*

MORTON GLUCK, A.B., M.D., *Clinical Instructor in Medicine*

IRA DAVID GODWIN, B.S., M.D., *Associate in Pathology*

SAMUEL VAHRAM GOEKJIAN, A.B., LL.B., *Lecturer in Law in the Graduate School of*
Public Law

HAROLD GOLD, LL.B., *Professorial Lecturer in Engineering*

HERBERT ABRAHAM GOLDBERG, M.B., Ch.B., *Associate in Urology*

SEYMOUR ZONALD GOLDBLATT, B.S., M.D., *Clinical Instructor in Pediatrics*

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ERVIN GOMBOS, A.B., M.D., *Associate Professor of Medicine in The George Washington*
University Division of Medicine at the Mt. Alto Veterans Administration Hos-
pital

THOMAS ALPHONSE GONDER, B.S., M.D., *Assistant Clinical Professor of Medicine*

DEAN KEMPLE GOOD, M.B.A., *Lecturer in Business Administration*

CECIL EARNEST GOODE, M.S., *Professorial Lecturer in Public Administration*

NELSON GATES GOODMAN, A.B., M.D., *Clinical Instructor in Medicine*

REUBEN GOODMAN, M.D., *Assistant Clinical Professor of Dermatology*

WILLIAM WOOLCOTT GOODRICH, LL.B., *Lecturer in Law*

SAMUEL CHRABOLOWSKI GORDON, M.D., *Assistant Clinical Professor of Psychiatry*

CONRAD GOSSELS, M.D., *Assistant Clinical Professor of Medicine*

DANIEL GOTTlieb, A.M., *Lecturer in Journalism*

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MURRAY GRANT, M.D., D.P.H., *Clinical Professor of Community Health*

PAUL HOLLEY GRAY, B.S., M.D., *Associate Clinical Professor of Psychiatry*

WOOD GRAY, Ph.D., *Professor of American History*

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ROBERT MILTON GREENBERG, A.B., M.D., *Assistant Clinical Professor of Psychiatry*

SAMUEL GREENHOUSE, Ph.D., *Professorial Lecturer in Statistics*

ANGUS MACIVOR GRIFFIN, Ph.D., *Professor of Microbiology; Associate Dean of the*
School of Medicine

WILLIAM BYRON GRIFFITH, Ph.D., *Assistant Professor of Philosophy*

ROBERT EDMUND GRIFFITHS, M.H.A., *Assistant Professor of Hospital Administration*

NELSON THOMAS GRISAMORE, Ph.D., *Professor of Engineering and Applied Science; Assistant Dean (Research) of the School of Engineering and Applied Science; Director, Center for Measurement Science*

ROBERT HENRY CROH, B.S., M.D., *Associate Clinical Professor of Neurology*

FREDERICK MOULTON GROSS, M.D., *Associate in Medicine*

MABEL HARLAKENDEN GROSVENOR, M.D., *Assistant Clinical Professor of Pediatrics*

PHILIP DONALD GRUB, D.B.A., *Assistant Professor of Business Administration*

DEION GRUENBERGER, Ph.D., *Visiting Assistant Research Professor of Pharmacology*

LESLIE ARNOLD GUILDNER, Ph.D., *Adjunct Professor of Applied Science*

GRACE HUGHES GUIN, B.S., M.D., *Assistant Clinical Professor of Pathology*

MILTON GUSACK, A.B., M.D., *Associate Clinical Professor of Medicine*

MILTON GUSSOW, M.S., *Associate Professorial Lecturer in Engineering*

MARGARET FRANCES GUTELIUS, A.B., M.D., *Associate Clinical Professor of Pediatrics*

SHELDON EDWARD HABER, Ph.D., *Lecturer in Economics*

EDWARD HACSKAYLO, Ph.D., *Associate Professorial Lecturer on Plant Physiology*

FRED LATIMER HADSEL, Ph.D., *Professorial Lecturer in Political Science*

HAROLD MELTON HAGEN, M.D., *Instructor in Radiology; Radiologist, University Hospital*

JOHN THOMAS HAGENBUCHER, B.S., M.D., *Associate in Medicine*

WILLIAM ARCHER HAGINS, M.D., Ph.D., *Associate in Physiology*

ALLAN HALL, A.B., M.D., *Assistant Professor of Surgery*

WILSON LUTHER HALL, A.B., M.D., *Associate in Medicine*

FRANCIS NEWELL HAMBLIN, A.B., Ed.D., *Professor of Education; Dean of the School of Education*

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WILLIAM DONALD HANN, Ph.D., *Associate in Microbiology*

IRA BOWERS HANSEN, Ph.D., *Professor of Zoology*

LOUIS HANSEN, D.D.S., M.S., *Associate Clinical Professor of Pathology*

KERMIT HENRY HANSON, A.B., M.D., *Assistant Professor of Anesthesiology*

TERUO HARA, A.M., *Studio Lecturer in Art (Ceramics)*

JAMES WILLARD HARKNESS, B.S., Ed.M., *Professor of Chemistry*

HENRY HARRILL, M.D., *Assistant Clinical Professor of Radiology*

JEROME BLAINE HARRELL, M.D., *Associate Clinical Professor of Surgery; Associate University Surgeon*

DAVID WARNER HARRIS, A.B., M.D., *Associate in Psychiatry*

FOREST KLAIRE HARRIS, Ph.D., *Adjunct Professor of Engineering*

FOREST KLAIRE HARRIS II, B.S., M.D., *Assistant Clinical Professor of Medicine*

LOUIS JAMES HARRIS, A.B., LL.B., S.J.D., LL.M., *Professor of Law*

ELBERT EARNEST HARRISON, Mus.M., *Assistant Professor of Music*

ISABELLA HARRISON, A.B., M.D., *Associate in Surgery*

JOHN MAY HARRISON, M.S., *Assistant Professor of Physics*

GEORGE LUZERNE HAHT, Jr., A.B., LL.B., *Professorial Lecturer in Law*

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* On leave of absence spring semester 1964-65.

THOMAS LEES HARTMAN, A.M., M.D., Associate in Medicine

QUENTIN HARTWIG, Ph.D., Assistant Professor of Physiology

WILLIAM HERBERT HARVEY, B.S., M.D., Clinical Instructor in Medicine

RICHARD CATLIN HASKETT, Ph.D., Professor of American History

GEORGE JOSEPH HAYES, B.S., M.D., Assistant Clinical Professor of Neurological Surgery

MURDOCK HEAD, M.D., D.D.S., LL.B., Assistant Clinical Professor of Surgery; Professorial Lecturer in Forensic Medicine

ROBERT AARON HECHTMAN, Ph.D., Professor of Engineering and Applied Science

ROBERT HELLER, Ph.D., Professor of Engineering and Applied Science

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EUGENE SHELTON HENDERSON, A.B., M.D., Associate in Physiology

GEORGE FRANCIS HENIGAN, JR., Ph.M., Professor of Speech; Director of Forensics

FRANCIS VLERBOME HENRY, Mus.B., Ph.D., Associate Professor of Speech

CHARLES HERBER, A.M., Assistant Professor of European History

JOHN DAVID HERMAN, B.S., M.D., Clinical Instructor in Medicine

PHILIP FIELD HERBICK, A.B., LL.B., LL.M., Professorial Lecturer in Law

HANS HEYMAN, JR., M.L.A., Professorial Lecturer in International Affairs, Institute for Sino-Soviet Studies

ROBERT SEATON HIGDON, B.S., M.D., Professor of Dermatology; Associate Director of University Clinics

FRANK HIGGINBOTHAM, M.S., C.P.A., Professorial Lecturer in Accounting

GEORGE ALFRED HIGGINS, JR., B.S., M.D., Clinical Professor of Surgery

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FRED GEORGE HILKERT, A.B., M.D., Assistant Clinical Professor of Psychiatry

*CHARLES WADSWORTH HILL, Ph.D., Associate Professor of Psychology

ELIZABETH HARMAN HILL, M.D., Associate Clinical Professor of Medicine

INEZ THEW HILL, A.B., M.D., Assistant Clinical Professor of Physical Medicine and Rehabilitation

JAMES DANIEL HILL, A.B., J.D., Lecturer in Law

PETER PROAL HILL, A.M., Assistant Professor of History

ROBERT ANDREW HINES, M.D., Associate Clinical Professor of Medicine

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JOSEPH FREDERICK HOFFMAN, Ph.D., Lecturer in Physiology

JOHN HOLDEN, Ph.D., Professorial Lecturer in Education

THOMAS WILLARD HOLLAND, LL.B., Ph.D., Professor of Labor Economics

ARIEL CAMILL HOLLINSHED, Ph.D., Associate Research Professor of Medicine (Pharmacology)

PEARL HOLLY, M.S., M.D., Clinical Professor of Medicine

MARY ALIDA HOLMAN, Ph.D., Assistant Research Professor of Economics

ROBERT HONEYGUSKY, A.M., Assistant Professor of Speech

WARING CARBUNTON HOTPINS, Ph.D., Professor of International Affairs

JULIAN HOPTMAN, Ph.D., Assistant Research Professor of Microbiology

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- ALEC HORWITZ, M.S., M.D., *Clinical Professor of Surgery*
 DAVID HORWITZ, M.D., *Assistant Clinical Professor of Medicine*
 NORMAN HAROLD HORWITZ, A.B., M.D., *Clinical Instructor in Neurological Surgery*
 NICHOLAS HOTTON, Ph.D., *Professorial Lecturer in Geology*
 CHARLES EDWIN HOUSTON, Ph.D., *Professorial Lecturer in Business Administration*
 ROBERT LYNWOOD HOWARD, A.B., M.D., *Clinical Instructor in Medicine*
 WILLIAM ALLEN HOWARD, A.B., M.D., *Clinical Professor of Pediatrics*
 JOHN STEWART HOWE, A.B., M.D., *Associate Clinical Professor of Pathology*
 JOHN DECATOR HOYLE, B.S., M.D., *Clinical Instructor in Surgery*
 CHING-YAO HSIEH, Ph.D., *Assistant Professor of Economics*
 PHYLLIS ANNE HUENE, A.B., M.D., *Clinical Instructor in Dermatology*
 RUDOLPH HUCH, Ph.D., *Associate Professor of Microbiology*
 SAMUEL HUMES, Ph.D., *Associate Professorial Lecturer in Public Administration*
 WELLINGTON HUNG, B.S., M.D., *Assistant Professor of Pediatrics*
 DOUGLAS HUNT, A.B., Ed.M., *Lecturer in Education*
 THELMA HUNT, Ph.D., M.D., *Professor of Psychology*
 STEVEN JOHN HUNTER, Ph.D., *Assistant Professor of Economics*
 GILBERT HURWITZ, B.S., M.D., *Clinical Instructor in Medicine*
 ARTHUR PROCTOR HUSTEAD, B.S., M.D., *Clinical Instructor in Neurological Surgery*
 CLAYTON HUTCHINS, Ph.D., *Professorial Lecturer in Education*
 GÉRARD PAUL HUVÉ, *Instructor in French*
 GEORGE IDELSON, B.S., *Associate Professorial Lecturer in Business Administration*
 GERARD INGIACIATO, B.S., M.D., *Clinical Instructor in Surgery*
 JOSEPH LAMBERT INTERNAGGIO, M.R.P., *Professorial Lecturer in Engineering*
 VINCENT MICHAEL IOVINE, B.S., M.D., *Clinical Professor of Surgery*
 NORMAN HARRY ISAACSON, A.B., M.D., *Clinical Instructor in Surgery*
 MAX ISENBERG, A.M., LL.M., *Professor of Law*
 MARGARET IVES, Ph.D., *Professorial Lecturer in Psychology*
 CAROLINE JACKSON, A.M., M.D., *Assistant Clinical Professor of Obstetrics and Gynecology*
 JOHN WINFIELD JACKSON, B.S., LL.B., *Adjunct Professor of Law*
 EUGENE JACOBSON, M.D., M.S., *Associate in Physiology*
 MARSHALL HANNIS JACOBSON, A.B., M.D., *Associate Professor of Medicine*
 YORKE GERSON JACOBSON, B.S., M.D., *Associate in Physiology*
 GILBERT CHESTER JACOBUS, B.S. in C.E., M.B.A., LL.B., *Professor of Public Administration*
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 RUTH ELIZABETH KERR JACOBY, A.B., M.D., *Associate in Neurological Surgery*
 FRANK SKIFF JANNOTTA, A.B., M.D., *Assistant Professor of Pathology*
 LUDVIK JANOS, Dr. rer. nat., *Visiting Associate Professor of Mathematics*
 WILLIAM DABNEY JARMAN, B.S., M.D., *Associate Clinical Professor of Urology*
 GARTH LOURAY JARVIS, A.B., M.D., *Assistant Clinical Professor of Obstetrics and Gynecology*
 HERBERT JEHL, Dr. Ing., *Professor of Physics*
 JOE LEE JESSUP, M.B.A., *Professor of Business Administration*
 DAVID PALMER JOHNSON, Ph.D., *Adjunct Professor of Engineering*
 EVA MAYNE JOHNSON, Ph.D., *Associate Professor of Psychology*
 EVERETT HURSTILL JOHNSON, Ph.D., *Professor of Statistics*
 HOWARD ODIN JOHNSON, A.M., Ed.D., *Professorial Lecturer in Education*

- JANET WILDMAN JOHNSON, Ph.D., *Lecturer in Psychology*
 THOMAS NICK JOHNSON, Ph.D., *Associate Professor of Anatomy*
 WARREN CHARLES JOHNSON, B.S., M.D., *Associate in Psychiatry*
 JOSEPH BOUDINOT JOHNSTON, JR., B.S., M.D., *Assistant Clinical Professor of Radiology (Radio Biology)*
 WERNER JONDORF, Ph.D., *Assistant Research Professor of Pharmacology*
 BEN CALLOWAY JONES, JR., B.S., M.D., *Assistant Clinical Professor of Medicine*
 CHARLES WILSON JONES, A.B., M.D., *Assistant Clinical Professor of Medicine*
 ROBERT GEAN JONES, B.D., Ph.D., *Professor of Religion*
 ROBERT SMITH JORDAN, Ph.D., D.Phil. (Oxon.), *Associate Professor of International Affairs; Assistant to the President*
 ROBERT KONRAD KAHN, Ph.D., *Associate Professorial Lecturer in Psychology*
 IRWIN HOWARD KAISER, A.B., M.D., *Associate Clinical Professor of Psychiatry*
 PAULA REINES KAISER, M.B., Ch.B., M.D., *Associate Professor of Anesthesiology*
 JACOBUS MARTINUS KAISER, Ph.D., *Associate Research Professor of Botany*
 ALAN HIRSH KAPLAN, A.B., LL.B., LL.M., *Lecturer in Law*
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 KENNETH CASPER KATES, Ph.D., *Professorial Lecturer in Zoology*
 ERLE GALEN KAUFFMAN, Ph.D., *Associate Professorial Lecturer in Geology*
 MORTON SELWYN KAUFFMAN, A.B., M.D., *Associate in Obstetrics and Gynecology*
 RICHARD KAUFMAN, A.B., M.D., *Clinical Instructor in Medicine*
 SAMUEL KAVRUCK, B.S., A.M. in Govt., Ed.D., *Associate Professorial Lecturer in Education*
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 ROBERT KAYE, D.B.A., *Professorial Lecturer in Business Administration*
 ELMER LOUIS KAYSER, Ph.D., LL.D., *Professor of European History; University Historian*
 IRVING KAYTON, A.B., LL.B., *Associate Professor of Law*
 CHARLES KECK, A.B., M.D., *Associate in Orthopedic Surgery*
 CHRISTINE WAPLES KEHNE, A.B., M.D., *Associate in Psychiatry*
 WILMER DEAYER KEHNE, A.B., M.D., *Assistant Clinical Professor of Psychiatry*
 GEORGE ARCHIBALD KESLER, JR., B.S., M.D., *Associate Professor of Medicine*
 HOMER HADLEY KEMPFER, Ed.D., *Professorial Lecturer in Education*
 MEIR KENDE, M.S., *Associate in Microbiology*
 JOHN ALEXANDER KENDRICK, A.B., LL.B., *Clerk of the Trial Practice Court*
 *JOHN WHITEFIELD KENDRICK, Ph.D., *Professor of Economics*
 JOHN KENEALY, A.B., M.D., *Clinical Instructor in Urology*
 PETER KENMORE, M.D., *Assistant Professor of Orthopedic Surgery*
 ROBERT WAYNE KENNY, B.J., Ph.D., *Assistant Professor of History*
 GEORGE OTTO KENT, D.Phil. (Oxon.), *Professorial Lecturer in History*
 HEWITT KENYON, Ph.D., *Associate Professor of Mathematics*
 JOHN MARK KESHISHIAN, M.D., *Associate in Surgery*
 FREDERICK JOSEPH KESSLER, M.B.A., *Assistant Professor of Preventive Medicine and Community Health*
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 NORAYR KRIKOR KHATCHERESSIAN, A.M., *Instructor in Physics*
 HARRY JAY KRUEGER, M.D., *Associate Clinical Professor of Radiology*

- ROBERT GILLIS KINDRED, M.D., *Assistant Clinical Professor of Orthopedic Surgery*
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 JOHN HARRY KING, JR., B.S., M.D., *Clinical Professor of Ophthalmology*
 ARTHUR HIRAM KIRACOFF, JR., A.M., M.D., *Associate in Psychiatry*
 HAYDEN KIRBY-SMITH, B.S., M.D., *Associate Clinical Professor of Dermatology*
 VIRGINIA RANDOLPH KIRKPATRICK, A.M., Ed.D., *Associate Professor of Educational*
Psychology; Dean of Women
 WILLIAM WALLACE KIRKPATRICK, A.B., LL.B., *Professor of Law; Assistant Dean of*
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 STANLEY MARTIN KIRSON, A.B., M.D., *Clinical Instructor in Surgery*
 STANLEY WILLIAM KIRSTEIN, A.B., M.D., *Assistant Clinical Professor of Medicine*
 HANS JOACHIM KLAPPROTH, M.D., *Clinical Instructor in Urology*
 JACK KLEH, A.B., M.D., *Associate Clinical Professor of Medicine*
 MORRIS KLEINERMAN, B.S., M.D., *Associate Clinical Professor of Psychiatry*
 VINCENT KLEINFELD, LL.B., *Lecturer in Law*
 PHILIP ALVIN KLEIGER, M.D., *Assistant Clinical Professor of Physical Medicine and*
Rehabilitation
 DONALD CHENOWETH KLINE, B.Arch., M.F.A., *Professor of Art*
 CALVIN TREXLER KLOPP, A.B., M.D., *Warwick Professor of Surgery (Cancer)*
 ALVIN BEHNT CLIFFORD KNUDSON, B.S., M.D., *Associate in Physical Medicine and*
Rehabilitation
 GEORGE MARTIN KOEHL, A.M., *Professor of Physics; Associate Dean of Columbian*
College of Arts and Sciences
 MARVIN CURTIS KORENGOLD, D.D.S., B.S., M.D., *Clinical Instructor in Neurology*
 ZELDA HORNIR KOSH, A.M., *Associate Professorial Lecturer in Education*
 TOM KOZES, A.M., *Professorial Lecturer in Business Administration*
 NORMAN CLIFFORD KRAMER, M.S., M.D., *Associate Professor of Medicine*
 ROBERT KRAMER, A.B., LL.B., *Professor of Law; Dean of the Law School*
 WOLFGANG HERBERT KRAUS, DE. JUR., S.J.D., *Professor of Political Science*
 SHELDON KRISS, B.S., M.D., *Clinical Instructor in Medicine*
 JOSEPH LEO KRILGER, Ph.D., *Professorial Lecturer in Business Administration*
 MORRIS EDWARD KRUCOFF, B.S., M.D., *Assistant Clinical Professor of Otolaryngology*
 JOSEPH HENRY KRUPA, M.S., Ed.D., *Professor of Physical Education for Men*
 HAROLD JOHN KUBALAK, A.M., *Lecturer in Education*
 HAROLD DEMING KUBE, M.B.A., *Visiting Professor in Engineering Administration*
 CARL ALBERT KUETHER, Ph.D., *Professorial Lecturer on General Biochemistry*
 SOLOMON KULLBACK, Ph.D., *Professor of Statistics*
 MORTON KUPPERMAN, Ph.D., *Professorial Lecturer in Statistics*
 WILLIAM KURSTIN, B.S., M.D., *Clinical Instructor in Medicine*
 FREDERICK CHARLES KURTZ, M.B.A., C.P.A., *Associate Professor of Accounting*
 EDWARD IRVING KUSHNER, B.S., M.D., *Associate in Psychiatry*
 WILLIAM THURSTON LADY, M.D., *Assistant Clinical Professor of Obstetrics and*
Gynecology
 RICHARD LAFEAN, B.F.A., B.S. in Ed., *Studio Lecturer in Art (Ceramics)*
 RICHARD LAHEY, *Studio Lecturer in Art (Drawing and Painting)*
 PETER WILHELM LAMPERT, M.D., *Clinical Instructor in Pathology*
 GERALD SAUL LANDAU, B.S., *Associate in Chemistry*

* On sabbatical leave fall semester 1964-65

- MANUEL LANDMAN, B.S., M.D., Assistant Clinical Professor of Dermatology
 HARRY HILL LONDON, JR., Ph.D., Associate Professorial Lecturer in Physics
 HERBERT EDWARD LANE, JR., M.D., Clinical Instructor in Orthopedic Surgery
 JOHN CARL LANG, A.M., Ed.D., Professorial Lecturer in Education
 ARTHUR DAVID LARSON, A.M., Assistant Professor of Public Administration
 THOMAS LARSON, A.M., Professorial Lecturer in International Affairs, Institute for
Sino-Soviet Studies
 JOHN FRANCIS LATIMER, Ph.D., Professor of Classical Languages and Literatures
 JOHN WILMER LATIMER, JR., M.D., Associate Clinical Professor of Medicine
 HENRY PRATHER LAUGHLIN, B.S., M.D., Associate Clinical Professor of Psychiatry
 CHARLES EDWARD LAW, M.D., Assistant Clinical Professor of Medicine
 STUART CHARLES LAW, A.B., LL.B., Associate Professor of Law
 ESTHER LAWTON, A.M., Lecturer in French
 BERTON JOE LEACH, Ph.D., Assistant Professor of Zoology
 ARNOLD ALBERT LEAR, M.D., Associate in Medicine
 *HUGH LINUS LEBLANC, Ph.D., Professor of Political Science; Coordinator, Program
in Public Affairs (including Economic Policy)
 GUST ANGELO LEDAKIS, B.B.A., LL.B., S.J.D., Professor of Law
 CHESTER ELWOOD LEESE, Ph.D., Fry Professor of Physiology
 LUBIN POE LELGETTLE, A.M., Ed.D., Depew Professor of Speech
 WOLFRAM KARL LEIGNER, Ph.D., Professor of German
 HAROLD BERNARD LEHRMAN, A.B., M.D., Assistant Clinical Professor of Psychiatry
 SANFORD LEON LEIKEN, M.D., Assistant Professor of Pediatrics
 LAURENCE PEREIRA LEITE, A.M., Associate Professor of Art
 LOUIS SAMUEL LELAND, B.S., M.D., Associate Clinical Professor of Dermatology
 JOSEPH ALBERIC LEO LEMAY, A.M., Instructor in English
 EDWARD JOSEPH LEONARD, M.D., Associate in Medicine
 THOMAS MILES LEONARD, Ph.B., M.D., Assistant Clinical Professor of Obstetrics and
Gynecology
 CHARLES ULYSSES LETOURNEAU, A.B., M.D., B.C.L., M.S. in H.A., Professorial
Lecturer in Health Care Administration
 GORDON SPARKS LETTERMAN, B.S., M.D., Clinical Professor of Surgery
 ARTHUR JEROME LEVENS, B.S., M.D., Associate in Neurology
 JACK LOUIS LEVINE, M.D., Assistant Clinical Professor of Otolaryngology
 ROBERT JOHN LEVINE, A.B., M.D., Clinical Instructor in Medicine
 SAR LEVITAN, Ph.D., Research Professor of Labor Economics
 BERNARD ISAAC LEVY, Ph.D., Professor of Psychology; Director, Graduate Training in
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 MARIE-LOUISE LEVY, B.S., M.D., Assistant Professor of Anesthesiology
 EDWIN LEWIS, M.B.A., Professor of Accounting
 VERNE BRUCE LEWIS, Ed.B., A.M., Associate Professorial Lecturer in Public
Administration
 WILLIAM LEWIS, M.D., Associate in Medicine
 HERBERT JOSEPH LIEBESNY, J.D., Associate Professorial Lecturer in Law
 CALVIN DARLINGTON LINTON, Ph.D., Professor of English Literature; Dean of
Columbian College of Arts and Sciences
 GORDON LESLIE LIPITT, B.D., Ph.D., Professor of Behavioral Sciences; Director,
Center for Behavioral Sciences

* On sabbatical leave spring semester 1964-65.

- LEON MCNEELY LIVERETT, B.S., M.D., Associate in Obstetrics and Gynecology**
THOMAS PHILLIP GEORGE LIVERMAN, Ph.D., Professor of Mathematics
EULOGIA LLANSA, Lic. en Det. Dipl., LL.D., Ph.D., Instructor in Spanish
JEAN DOUGLAS LOCKHART, A.B., M.D., Clinical Instructor in Pediatrics
JOHN HAYES LODGE, A.B., M.D., Associate in Ophthalmology
KURT LONDON, Ph.D., Professor of Sino-Soviet Studies; Director, Institute for Sino-Soviet Studies
JAMES WALLING LONG, M.D., Associate in Medicine
JOSEPH LOPRESTI, B.S., M.D., Associate Clinical Professor of Radiology
JOHN THOMAS LORD, A.B., M.D., C.M., Clinical Instructor in Neurological Surgery
SAMUEL DENNIS LOUBE, A.B., M.D., Assistant Clinical Professor of Medicine
HORTENSE SARAH LOUCKES, Ph.D., Associate Research Professor of Physiology
REGINALD SPENCER LOURIE, B.S., M.D., Med. Sc.D., Clinical Professor of Pediatric Psychiatry
CARL GEORGE LOVE, A.B., J.D., Lecturer in Law
FLORENCE KENNEDY LOWMEYER, A.M., Lecturer in Speech
HOWARD ROWLAND LUDEN, A.M., Associate Professor of Political Science
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GUNNINGHAM RAMSEY MACCORDY, M.D., Associate Professor of Anesthesiology
GORDON RHODES MACDONALD, B.S., M.D., Associate in Urology
WILLIAM ALLAN MACDONALD, Ph.D., Professor of Art and Archaeology
THAYER MILLS MACKENZIE, B.S., M.D., Associate in Psychiatry
ARCHIBALD RICE MACPHERSON, A.B., M.D., Associate in Pediatrics
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BENJAMIN MANCHESTER, M.D., Associate Clinical Professor of Medicine
HAROLD GEORGE MANDEL, Ph.D., Professor of Pharmacology
JAMES CHARLES MANDER, A.B., M.D., Clinical Instructor in Medicine
JAMES PACKARD MANN, M.D., Assistant Clinical Professor of Medicine
HENRY GIRARD MANNE, A.B., J.D., LL.M., Professor of Law
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ANTHONY MARINACCIO, Ph.D., Professorial Lecturer in Education
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WILLIAM HENRY MARLOW, Ph.D., Professorial Lecturer in Mathematics
COSIMO ATIMONT MARSAN, M.D., Associate in Neurology
WILLIAM LAVIERNE MARSH, B.S., M.D., Associate Professor of Pathology
JOHN ROMNEY MARSHALL, M.D., Clinical Instructor in Obstetrics and Gynecology
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 † On leave of absence 1964-65.

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- VICTOR SELMAN, M.S., *Lecturer in Applied Science*
- ALVIN SELTZER, B.S., M.D., *Assistant Clinical Professor of Medicine*
- FELIX IRA SHAFFNER, Ph.D., *Professorial Lecturer in Business Administration*
- PRESSON SCOTT SHANE, M.S., *Lecturer in Applied Science*
- ROBERT POINDEXTER SHARKEY, Ph.D., *Associate Professor of Economic History*
- DAVID JAMES SHARPE, A.B., LL.B., *Associate Professor of Law*
- GEORGE SHARPE, A.B., M.D., *Associate in Medicine*
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- GEORGE WALTER SHELHORSE, LL.B., *Lecturer in Law*
- ERNEST SEWALL SHEPARD, A.M., *Professor of English Literature*
- ERNEST ALFRED WATSON SHEPARD, M.D., C.M., *Clinical Professor of Ophthalmology*
- MAX GIMBLE SHERER, M.S., M.D., *Clinical Instructor in Medicine*
- JOSEPH LEE SHERIDAN, A.B., M.D., *Assistant Clinical Professor of Psychiatry*
- CHARLES SHILLING, M.D., *Clinical Instructor in Medicine*
- ELIAS IRVING SHOOK, A.B., *Lecturer in Speech*
- PAUL EDMUND SHORB, JR., A.B., M.D., *Instructor in Surgery*
- WALTER ALLEN SHROPSHIRE, JR., Ph.D., *Associate Professorial Lecturer in Botany*
- EDWIN SHUTTS, Ph.D., *Associate Professorial Lecturer in Speech*
- THOMAS SHWORLES, A.M., *Associate in Medicine (Social Psychologist)*
- ROBERT SUMNER SIBALOUS, Ph.D., *Associate Professorial Lecturer on Plant Ecology*
- HAROLD MARTIN SILVER, A.B., M.D., *Associate Clinical Professor of Medicine*
- KENNETH THOMAS SIMENDINGER, M.S., *Associate in English*
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- CLARK SIMPSON, M.C.S., *Professorial Lecturer in Accounting*
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- JOHN WILLIAM SKINNER, Ph.D., *Professor of Economics*
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- CLARENCE CLELL SMARR, Staff Sergeant, United States Air Force, *Instructor in Air Science*
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- EDWARD BYRON SMITH, B.S., M.D., *Clinical Professor of Pathology*
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ROBERT STEINMULLER, M.D., *Clinical Instructor in Medicine*

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 LEON SWELL, Ph.D., *Professorial Lecturer on Lipids*
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 ROLAND HENRY TANCK, Ph.D., *Assistant Research Professor of Psychology; Counselor, Testing and Counseling Center*
 JOSEPH TANEY, *Studio Lecturer in Art (Commercial Art)*
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 GEZA TELLEKI, Ph.D., *Professor of Geology*
 IRA ROCKWOOD TELFORD, Ph.D., *Professor of Anatomy*
 DOUGLAS HAROLD TELLER, A.B., M.F.A., *Assistant Professor of Art*
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 JAMES RICHARD THISTLETHWAITE, B.S., M.D., *Associate Clinical Professor of Surgery*
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 DAVID MICHAEL TORMEY, B.S., M.D., *Assistant Clinical Professor of Medicine*
 WILLIAM GEORGE TORMEY, Ph.D., *Professorial Lecturer in Public Administration*
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 MARY TRONSUE, A.M., *Lecturer in Education*
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 FRANK ROBERT TURAJ, A.M., *Instructor in English*
 DON TURANO, *Studio Lecturer in Art (Sculpture)*
 WILLIAM LEWIS TURNER, Ph.D., *Associate Professor of English; Assistant Dean in Columbian College of Arts and Sciences*
 CURTIS EDWARD TUTTILL, Ph.D., *Associate Professor of Psychology*
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 GEORGE VARTKES VAHOUNY, Ph.D., *Associate Professor of Biochemistry*
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 LEONARD PATRICK WALSH, A.B., LL.B., *Professorial Lecturer in Law*
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 JOSEPH CHENG-PIN WANG, A.B., *Associate Professorial Lecturer in Chinese*
 HEINZ WARNEKE, *Studio Lecturer in Art (Sculpture)*
 ROBERT ORR WARTHEN, M.D., *Clinical Instructor in Pediatrics*
 FRANCIS WASHER, Ph.D., *Professorial Lecturer in Engineering*
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 DONALD STEVENSON WATSON, Ph.D., *Professor of Economics*
 JOSEPH HICKS WATSON, B.S., M.D., *Assistant Clinical Professor of Medicine*
 JOHN WATT, JR., M.D., *Associate Professor of Physical Medicine and Rehabilitation*

* On leave of absence 1964-65

- MARY FALORSI WATT, M.D., *Associate Professor of Medicine*
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 CHARLES MALCOLM WEHR, M.D., *Clinical Instructor in Radiology*
 GEORGE DAVIS WEICKHARDT, M.D., *Associate in Neurology*
 JOHN RUSSELL WEIMER, B.S., M.D., *Clinical Instructor in Ophthalmology*
 RUTH PLAUT WEINER, A.M., *Instructor in French*
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 ROBERT LOUIS WEINTRAUB, Ph.D., *Professor of Botany*
 WILLIAM WEISS, M.D., *Assistant Research Professor of Pharmacology*
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 WARD WHITFIELD, A.M., *Lecturer in Education*
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- BERNARD BERYL BRODIE, Ph.D., *Chief, Laboratory of Chemical Pharmacology, National Heart Institute; Biochemical Detoxication*
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- MARGARET GARRITSEN DE VRIES, Ph.D., *Economist; International Finance*
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- EDWARD HACSKEYLO, Ph.D., *Plant Physiologist, Forest Physiology Laboratory, Department of Agriculture; Mycology; Plant Physiology; Microorganisms*
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- MICHAEL JOSEPH SURGALLA, Ph.D., Chief, Bacteriology I Branch, Medical Bacteriology Division, Fort Detrick; Immunology
- SYDNEY UDENFRIEND, Ph.D., Chief, Laboratory of Clinical Biochemistry, National Heart Institute; Amino Acid Metabolism; Neurohormones
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- ROBERT WILLIAM BERLINER, B.S., M.D., Chief, Section on Kidney and Electrolyte Metabolism, National Heart Institute; Renal Disease
- JACK HAROLD CIPTON BROWN, Ph.D., Executive Secretary, Physiology Study Section, Division of General Medical Sciences, National Institutes of Health; Physiology
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- WILLIAM HOLMES CROSBY, A.B., M.D., Chief of Hematology, Walter Reed Army Institute of Research; Hematology
- KENNETH MARTIN EARLE, A.B., M.D., M.S., Chief, Neuropathology Branch, Armed Forces Institute of Pathology; Neurology
- ROBERT HANNA FELIX, M.D., M.P.H., Director, National Institute of Mental Health; Psychiatry
- DONALD SHARP FREDERICKSON, B.S., M.D., Clinical Researcher, Laboratory of Cellular Physiology and Metabolism, National Heart Institute; Internal Medicine
- FRANCIS BYRON GORDON, Ph.D., M.D., Head, Virology Division, Naval Medical Research Institute; Virology
- EDMUND ERNEST HAHN, Ph.D., Chief, Department of Molecular Biology, Walter Reed Army Institute of Research; Pharmacology
- ROTH HERTZ, Ph.D., M.D., Chief, Endocrinology Branch, National Cancer Institute; Medicine (Endocrinology)
- LEON JACOBS, Ph.D., Chief, Laboratory of Parasitic Diseases, National Institutes of Health; Medical Parasitology

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THE LOGISTICS RESEARCH PROJECT

The purpose of the Logistics Research Project is to study logistics problems in all their aspects, to develop more efficient and expeditious methods of solving logistics problems, and to apply advanced data processing techniques to the solution of these problems. A large scale data processing facility is based upon an IBM 7080 computer. This project is operated under contracts with the Department of the Navy.

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 ALBERT L. KUBALA, Ph.D., *Research Scientist*
 FRANK B. NELSON, Ph.D., *Research Scientist*
 A. DEAN WRIGHT, M.S., *Research Scientist*

U. S. ARMY AVIATION HUMAN RESEARCH UNIT

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 PETER B. DAWKINS, Ph.D., *Research Scientist*
 T. HARRISON GRAY, Ph.D., *Research Scientist*
 ROBERT H. WRIGHT, Ph.D., *Research Scientist*

THE MANAGEMENT RESEARCH GROUP

The Management Research Group seeks to serve Government, Industry, and Commerce by contributing to the development and understanding of basic theory in the field of management. The Group also provides assistance in translating theory into practice.

Relationships and techniques important to modern information flow and managerial decision-making are stressed. The research conducted extends to system design, analysis of system performance, and the valuation of practice in relation to managerial criteria.

GILBERT CHESTER JACOBUS, B.S. in C.E., M.B.A., I.L.B., *Director; Professor of Public Administration*
 ALBERT E. DENNIS, B.S., *Senior Scientist*
 JAMES G. HATTOX, M.S. in E.E., M.B.A., *Senior Scientist*

BIOMETRIC LABORATORY

The Biometric Laboratory applies mathematical techniques to biological problems related to mental health. It was established under a contract with the National Institutes of Health. The laboratory assists investigators throughout the United States in planning research and in analyzing data. The majority of these research projects concern the effects of drugs on behavior.

ROLAND R. BONATO, Ph.D., *Director; Assistant Research Professor of Psychology*

NILS B. MATTSON, LL.M., *Senior Scientist*

BELUR K. RADHAKRISHNAN, M.S. in Ind.E., *Senior Scientist*

DEBORAH KATZ, A.M., *Research Scientist*

SAMUEL TRYCHIN, JR., A.M., *Research Scientist*

KENNETH CHI-KUN YANG, A.B., *Research Scientist*

THE NASA SPACE FLIGHT TELEMETRY PROJECT

This project involves the reduction and analysis of telemetry data from NASA's sounding rocket program. Machine processing procedures are utilized wherever practical. As part of the analysis phase of this contract, preflight mathematical models are used to simulate the flight and predict the performance and characteristics of the rockets.

ROBERT HELLER, Ph.D., *Director; Professor of Applied Science*

DRIVER BEHAVIOR RESEARCH PROJECT

The Driver Behavior Research Project was established through a grant awarded to the Department of Psychology by the Accident Prevention Division of the Department of Health, Education, and Welfare to develop driver training and rehabilitation procedures for increasing automobile safety. The project is investigating the use of programmed learning, group discussion, and mass communication in driver education.

LAWRENCE E. SCHLESINGER, Ph.D., *Director; Associate Research Professor of Psychology*

RICHARD MYRICK, Ph.D., *Senior Scientist*

LOUIS G. PORTER, Ph.D., *Senior Scientist*

EDWARD H. FISCHER, Ph.D., *Research Scientist*

MIRIAM SAFREN, Ph.D., *Research Scientist*

THE AREA REDEVELOPMENT PROJECT

The legislative history of the federal program to aid depressed areas (Area Redevelopment Act of 1961) and an appraisal of the program's implementation during the first two years after the legislation was enacted.

SAR A. LEVITAN, Ph.D., *Director; Research Professor of Labor Economics*

THE MENTAL COMPETENCY STUDY

The Mental Competency Study is investigating the operation of the law governing persons who, because of mental illness, are not competent to manage their affairs and need to have a guardian appointed. It will survey all noncriminal aspects of the subject. Investigations of actual practices are being conducted in selected communities throughout the United States. It is contemplated that the study will lead to recommendations for improvements.

RICHARD C. ALLEN, A.B., LL.B., LL.M., *Director; Associate Professor of Law*
ELYCE H. ZENOFF, B.S., LL.B., *Senior Scientist; Lecturer in Law*

THE COMPUTER PROGRAMS RESEARCH PROJECT

The purpose of the Computer Programs Research Project is to develop general purpose computer programs for the Division of Research Grants of the National Institutes of Health. The current activities of the project include analysis of data gathering and data processing activities, examination of numerous specific problems for common elements that can be resolved by a single generalized computer program, and developing and testing these programs on the Honeywell 800 computer. In the near future, research efforts will be oriented toward producing limited information retrieval systems.

ROLAND R. BONATO, Ph.D., *Principal Investigator; Assistant Research Professor of Psychology*
MARGARET W. PRATT, A.B., *Senior Scientist*
JOSEPH D. DOLDAN, *Senior Scientist*
MARY ANN HARTNETT, A.B., *Research Scientist*

THE SOCIAL RESEARCH PROJECT

The Social Research Project conducts surveys and experiments with concentration on basic research underlying an approach to the solution of social problems. Current emphasis is on a descriptive survey of American drinking practices, under a grant from the National Institute of Mental Health.

IRA H. CISEN, Ph.D., *Director; Professorial Lecturer in Statistics*
ARTHUR D. KIRSCH, Ph.D., *Senior Staff Scientist*

THE CENTER FOR MEASUREMENT SCIENCE

The Center, under the direction of the School of Engineering and Applied Science, is a cooperative activity of the University, industry, and government providing education, research, and service programs related to measurement.

The research program of the Center includes all aspects of research and development related to measurement science. Research and/or development may be undertaken as independent studies by staff members for the Center, as students for a sponsor under contract, or by personnel of Associates of the Center assigned to the Center to undertake the specific work. Associates receive publications of the Center; certain publications may be restricted in distribution.

At present, part of the activities of the Center are supported by contracts with the National Aeronautics and Space Administration, the Office of Naval Research, and the Department of Health, Education, and Welfare.

NELSON T. GRISAMORE, Ph.D., *Director; Professor of Applied Science*

LOUIS DE PIAN, Ph.D., *Professor of Applied Science*

LOUIS H. GLASSMAN, D.Sc., *Associate Professor of Engineering and Applied Science*

ROBERT M. MOORE, M.S. in Eng., *Assistant Professor of Applied Science*

FRANKLIN D. McLERNON, B.S., *Senior Scientist*

THE INFORMATION SCIENCES PROJECT

The Information Sciences Project does work in the field of information retrieval. This project operates under a contract with the Department of Defense.

THOMAS B. WIGGINS, M.S. in Eng., *Principal Investigator; Lecturer in Engineering*

DONALD O. BAECHLER, B.E.E., *Senior Scientist; Associate in Engineering*

NICHOLAS A. SLOAN, B.S., *Senior Scientist; Lecturer in Applied Science*

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THE GEORGE WASHINGTON UNIVERSITY

Academic programs leading to degrees are offered in the following colleges and schools:

Columbian College of Arts and Sciences: Associate in Arts (A.A.), Associate in Science (A.S.), Bachelor of Arts (A.B.), Bachelor of Science (B.S.), Bachelor of Science in Medical Technology (B.S. in Med. Tech.), Master of Arts (A.M.), Master of Fine Arts (M.F.A.), and Master of Science (M.S.)

Graduate Council: Doctor of Philosophy (Ph.D.)

School of Medicine: Doctor of Medicine (M.D.)

National Law Center:

Law School: Bachelor of Laws (LL.B.)

Graduate School of Public Law: Master of Laws (LL.M.), Master of Comparative Law (M.Comp.L.), and Doctor of Juridical Science (S.J.D.)

School of Engineering and Applied Science: Engineering Technologist Certificate (E.T.C.), Bachelor of Science (B.S.), Master of Science (M.S.), Master of Engineering Administration (M.E.A.), and Doctor of Science (D.Sc.)

School of Education: Bachelor of Arts in Education (A.B. in Ed.), Bachelor of Science in Physical Education (B.S. in P.E.), Master of Arts in Education (A.M. in Ed.), Education Specialist (Ed.S.), Advanced Professional Certificate (A.P.C.), and Doctor of Education (Ed.D.)

School of Government, Business, and International Affairs: Bachelor of Arts in Government (A.B. in Govt.), Bachelor of Business Administration (B.B.A.), Master of Arts in Government (A.M. in Govt.), Master of Business Administration (M.B.A.), Master of Public Administration (M.P.A.), Doctor of Business Administration (D.B.A.), and Doctor of Public Administration (D.P.A.)

College of General Studies: Associate in Arts (A.A.), Associate in Science (A.S.), Associate in Secretarial Administration (A.Sec. Adm.), Bachelor of Arts (A.B.), Bachelor of Business Administration (B.B.A.), Bachelor of Science in Cartography (B.S. in Cart.), Master of Arts (A.M.), Master of Arts in International Affairs (A.M. in I.A.), Master of Science in Business Administration (M.S. in B.A.), Master of Science in International Affairs (M.S. in I.A.), and Master of Science in Public Administration (M.S. in P.A.)

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Columbian College of Arts and Sciences	Director of Admissions
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Fellowships, Scholarships, Prizes,	
Financial Aid	Chairman, Committee on Scholarships
General Catalogue of the University	Director of Admissions
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Law School and Graduate School of Public Law	Director of Admissions
School of Education	Director of Admissions
School of Engineering and Applied Science	Dean of the School
School of Government, Business,	
and International Affairs	Director of Admissions
School of Medicine	Admissions Office, School of Medicine
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Jessie Bigelow Martin, A.B., *Editor of Academic Publications*

THE GEORGE WASHINGTON UNIVERSITY, 1821

COLUMBIAN COLLEGE OF ARTS AND SCIENCES, 1821
THE GRADUATE COUNCIL, 1893

THE SCHOOL OF MEDICINE, 1825

THE NATIONAL LAW CENTER, 1959
THE LAW SCHOOL, 1865
THE GRADUATE SCHOOL OF PUBLIC LAW, 1959

THE SCHOOL OF ENGINEERING AND APPLIED SCIENCE, 1884
THE SCHOOL OF EDUCATION, 1907
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INTERNATIONAL AFFAIRS, 1928

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The George Washington University

Bulletin



THE SCHOOL OF MEDICINE

1964-65

WASHINGTON, D. C. 20005

OCTOBER 1965

VOL. LXIII

NO. 2

CORRESPONDENCE DIRECTORY

Detailed information may be obtained by addressing inquiries as indicated below. For any information not included here, please write to the Director of Admissions, The George Washington University, Washington, D. C. 20006.

Information concerning courses of instruction and the programs of the several colleges and schools will be found in separate issues of the University Bulletin, which are listed on the inside back cover.

Admission Director of Admissions, Building C
 School of Medicine 1339 H Street NW
 Air Science (ROTC) Director of Air Science, Chapin Hall
 Alumni Association Alumni Office, Bacon Hall
 Medical Alumni Association 1335 H Street NW
 Foreign Students Adviser to Foreign Students, Building T
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Master's degrees Dean of Columbian College of Arts and Sciences
 Doctor of Philosophy Dean of The Graduate Council

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School of Medicine—Research and Administration Buildings



The George Washington University Hospital and Clinics

The
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Bulletin

THE SCHOOL OF MEDICINE
1964-65

VOLUME LXIII

OCTOBER 1963

NUMBER 2

CALENDAR OF THE SCHOOL OF MEDICINE 1964-65

FALL SEMESTER:

	1964	
Registration	Sept 10	Thurs
Classes begin	Sept 14	Mon
Veterans Day (holiday)	Nov 11	Wed
Thanksgiving recess	Nov 26-28	Thurs-Sat
Christmas recess	Dec 23-Jan 2	Wed-Sat
	1965	
Classes resume	Jan 4	Mon
Tuition for spring semester due	Jan 8	Fri
Inauguration (holiday)	Jan 20	Wed
Examination period	Jan 18-23	Mon-Sat

SPRING SEMESTER:

Classes resume for spring semester	Jan 25	Mon
Winter Convocation (holiday)	Feb 22	Mon
Easter recess	April 16-17	Fri-Sat
Examination period	May 17-25	Mon-Tues
Memorial Day (holiday)	May 31	Mon
Baccalaureate Service	June 6	Sun
Commencement	June 6	Sun

REGISTRATION FOR THE
ACADEMIC YEAR 1965-66

Sept 9

Thurs

THE SCHOOL OF MEDICINE*

THE FACULTY†

John Parks, *Dean*; A. M. Griffin, *Associate Dean*; A. E. Parrish, *Associate Dean*; C. B. Ethridge, *Director of Postgraduate Medical Education*

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Associate Professors Clarke Davison, A. E. Parrish, C. S. Tidball

Associate Clinical Professor J. J. McFarland, Jr.

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Administrator of the University Hospital V. F. Ludewig

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* Faculty and administrative members for the academic year 1963-64.
† The President of the University, the Dean of the School of Medicine, the Vice President for Finance and Resources, the President of the University, and the Director of Admissions of the University are ex officio members of the Faculty.
‡ The following have served since 1963-64.
§ The Dean of the School of Medicine and Associate Deans are ex officio members of all committees.

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GENERAL INFORMATION**INTRODUCTORY**

The School of Medicine of The George Washington University was opened in March 1925. Of the medical schools now in existence in the United States, it is the eleventh in chronological order of founding. The University Hospital and Dispensary were established in 1898 as a part of the organization of the School. The present George Washington University Hospital was opened in 1943, and the Helen L. and Mary E. Warwick Memorial Building housing the Cancer Clinic and Research Center was completed in 1954. Additional clinical facilities are used at the District of Columbia General Hospital, Children's Hospital, St. Elizabeths Hospital, Mt. Alto Veterans Administration Hospital, Fairfax Hospital, and Washington Hospital Center. The School of Medicine maintains close affiliation not only with the various divisions of the University, but also with the numerous medical research and scientific establishments of the federal government in the Nation's Capital. Washington provides world renowned library facilities, comprehensive museums, and excellent recreational facilities which are available to students.

OBJECTIVES

The purpose of the School of Medicine is to prepare men and women in the art and science of medicine to meet the health needs of a growing, ever changing society. It is the responsibility of the School of Medicine to provide its students with a systematic plan of instruction in the basic medical sciences, with well guided clinical experience, with opportunities for expression in research, and with a philosophy in keeping with the highest ethics of the profession.

To achieve these objectives the School of Medicine has developed a progressive plan of instruction and a balanced, comprehensive curriculum. To carry out the program the University maintains a faculty of adequate size and of outstanding ability and makes use of facilities which provide exceptional opportunities for research and clinical training.

PLAN OF INSTRUCTION

The Faculty and Board of Trustees of The George Washington University have instituted a new educational program for the School of Medicine. The new program is designed to help each student develop his individual skills to maximum potential, and to prepare him to meet his full responsibilities as a medical scientist and physician.

The curriculum provides graduated instruction, beginning with basic medical science and expanding to include the more complex aspects of health maintenance and care of the sick. It provides a broad basic preparation for a career in medicine.

In the first year, the schedule begins with an orientation period designed to introduce the new students to the Faculty, the upperclassmen, and the environment for their medical education.

The first semester is devoted to the study of the sciences (Anatomy and Biochemistry) concerned with the structure and composition of the normal human body. In the second semester of the first year, the science of normal function is further emphasized by courses in Physiology. These studies of the normal provide a basis for the emphasis on health maintenance which is a strong positive characteristic of the University's new teaching program. During the second semester the student is also introduced to the concept of disease in a course in Microbiology, where the various microbial agents and their effects upon the human body are studied. Elective courses are offered in the second semester of the first year and provide an opportunity for the student to begin the development of special interests under the guidance of a special adviser.

The basic courses of the first semester of the second year are Pathology and Pharmacology. In the former the student learns the nature and causes of disease as well as the alterations produced by disease in the tissues and fluids of the human body. He learns to recognize the abnormal and to evaluate its significance. Pharmacology provides an understanding of the mode of action of the various agents employed in the treatment of the sick, and emphasizes the safest and most effective means for their use. Opportunities for elective study are increased during the second year.

The second semester of the second year and the first semester of the third are devoted to acquaint the student with the principles and methods of clinical diagnosis and therapy, and to develop in him an awareness of his responsibility to his patients. He will learn, in the clinic, effective methods for interviewing and examining patients. The basic concepts of laboratory medicine are taught in special laboratory

facilities. In the "Continuing Care" program each student is assigned a limited number of patients for detailed study and observation in the office, home, and hospital. During these two terms, two full days will be available each week for electives.

During the final sixteen months of the curriculum each student has a clinical clerkship assignment of 12 months in the University Hospital and Clinics, and in affiliated hospitals. Patients with a wide variety of illnesses are assigned to each student for close personal study under the guidance of a faculty skilled in the various specialties of medical practice. In the course of the clerkship, the student is given increasing responsibility as he demonstrates his competence and professional maturity. During a two months' elective period, a student will have an opportunity to explore general practice, specialty practice, or areas of research which may help him to decide the direction of his career. Students with exceptional interests may be permitted to spend their elective period in other universities, including those of foreign countries, but practically all students will find ample opportunities in the University's own published schedule of nearly 150 different electives for upperclassmen.

Upon satisfactory completion of the four-year course of the School of Medicine, the student is well prepared for graduate training leading to a career in general or specialty practice, research, medical education, or government service.

EQUIPMENT AND FACILITIES

Medical School Building.—The building housing the School of Medicine is a five-story structure with lecture rooms, classrooms, students' rooms, and the following laboratories: anatomy, biochemistry, microbiology, pathology, pharmacology, and physiology.

They are fully equipped to enable students to pursue adequately the laboratory courses and to acquire the technical skill necessary in modern clinical and investigative work.

Research and Administration Building.—The Research Building houses special laboratories for graduate and staff research in the departments of Anatomy, chemistry, Microbiology, Pharmacology, and Physiology. Special facilities are provided for the study of radioactive compounds, for tissue-culture techniques, and virology procedures. Qualified students are invited to participate in certain aspects of the research program either on a volunteer basis or with the support of special Research Scholarships.

On the first floor, the west wing is occupied by a modern medical library; the east wing houses the administrative offices of the School of Medicine. Photographs, laboratories and other facilities for audio-visual aids to education are on the second floor.

Medical Library.—The Medical Library in well equipped quarters on the first floor of 1339 H Street NW., contains 27,000 carefully selected volumes, including the most medical works and the principal medical journals.

Interlibrary loan service is maintained with other medical and scientific libraries. The Medical Library is open from 9:00 A.M. to 10:00 P.M. each class day, Monday through Friday, and from 9:00 A.M. to 5:00 P.M. Saturday.

A branch of the Medical Library is maintained in the University Hospital for the use of the resident physicians, interns, and students. It is open Monday through Friday, 1:00 to 5:00 P.M. and 6:00 to 11:00 P.M. During the academic year the library is also open Saturday and Sunday from 1:00 to 5:00 P.M.

The George Washington University Hospital.—This 427-bed hospital is staffed and directed by the Faculty of The George Washington University School of Medicine. It provides excellent clinical opportunity for the instruction of medical students. Specialists in the fields of medicine and surgery have assigned space and equipment for the diagnosis and care of ambulatory and hospital patients.

CLINICAL FACILITIES

Students at The George Washington University School of Medicine receive clinical training at the University Hospital, at the University Cancer Clinic, and at affiliated hospitals.

The George Washington University Hospital.—The Medical Director and Chiefs of Services are responsible for the supervision of patient care. The individual student has direct responsibility to patients under supervision. Clinical conferences are held in which the history of patients, laboratory records, and the physical and pathological findings are presented and correlated.

The University Clinics.—The University Clinics have facilities for each Service in the Hospital. Students are assigned in rotation by section for instruction in the University Clinics.

The George Washington University Cancer Clinic.—The Helen L. and Mary E. Warwick Memorial Building, opened in 1954, houses the Cancer Detection Clinic and special laboratories for research related to the nature, diagnosis, and treatment of cancer.

The facilities of the Cancer Detection Clinic are used for teaching medical students. The diagnosis and treatment of various forms of neoplasms are presented. The results of treatment are evaluated by follow-up studies.

District of Columbia General Hospital.—The District of Columbia General Hospital, one of the ten largest general hospitals in the country, is a teaching facility for students of the School of Medicine.

The hospital has a bed capacity of approximately 1,450. It is the principal facility for the care of the indigent sick of the community. In 1962 the outpatient department had over 153,000 clinical visits. Approximately 180 patients are registered in the admitting and emergency service, of whom 12 per cent are admitted to the Hospital. This is the largest emergency service in the District, and a great variety of acute medical and surgical problems are examined and treated.

Children's Hospital.—This is one of the largest and best known hospitals for children in the United States. Medical students receive training and clinical experience in pediatrics on both clinic and inpatient services. Special lectures and clinical work in child psychiatry are given in Children's Hospital.

St. Elizabeths Hospital.—Saint Elizabeths Hospital, established by an act of Congress in 1855, is a federal psychiatric hospital administered under the Department of Health, Education, and Welfare. This Hospital provides for the treatment, care, and general wellbeing of approximately 8,000 patients. The facility includes a command approved General Hospital to meet the needs for medical and surgical care and functions with a full-time staff within the Hospital plus attending physicians in various specialties.

The Hospital maintains an up-to-date medical library.

The medical students of The George Washington University utilize the facilities of Saint Elizabeths for clinical psychiatric training.

The opportunities for research are enhanced by a cooperative arrangement with the National Institute of Mental Health of the United States Public Health Service.

Mt. Alto Veterans Administration Hospital.—This 335-bed hospital, commonly referred to as Mount Alto, is predominantly general medical and surgical, although 33 beds are reserved for the care of neurological and psychiatric patients.

The Hospital is equipped and operates with all modern facilities for care and treatment of patients, including a fully equipped medical library. In addition to its medical, surgical, neurological, and psychiatric facilities, the Hospital is designated to perform specialized treatment in a wide variety of fields. The Hospital also has personnel assigned to, and cooperates closely with, the Armed Forces Institute of Pathology.

Fairfax Hospital.—This 300-bed suburban hospital, which opened February 1961, is a teaching hospital serving an area with an estimated population of 302,000. In addition to its modernly equipped emergency room, outpatient facilities, surgical suites and delivery rooms, and private psychiatric unit, programs are offered for the training of nursing personnel.

Washington Hospital Center.—A 787-bed general hospital was opened in March 1959, combining the former facilities of Emergency, Episcopal, and Garfield hospitals. Located in northwest Washington, it serves the entire metropolitan area. A very active emergency service cares for more than 35,000 patients a year. All major clinical services are provided with the exception of pediatrics. In addition to an extensive training program for house officers, the Center offers organized instruction for nurses, laboratory and X-ray technicians, and medical secretaries.

GOVERNMENT MUSEUMS

The Armed Forces Institute of Pathology, on the grounds of Walter Reed Army Medical Center, affords unexcelled opportunity for study of conditions met in general medicine and surgery as well as those of special military significance. Its collection of anatomical and pathological specimens comprises material received from all areas of the world and is unequalled in this country. The Museum of Hygiene, the National Museum, the Smithsonian Institution, the Botanic Gardens, and the various collections of the Department of Agriculture all afford opportunity for study of materials of special interest in various areas of Medicine and its allied science.

ADMISSION

APPLICATION FOR ADMISSION

1. Full directions for application will be furnished on request. The applicant should ask the registrar of each college previously attended to send an official transcript of record to the Office of Admissions, The George Washington University School of Medicine, 1339 H Street NW., Washington, D. C. 20005. Photostatic copies of credentials without the original signature of the certifying authority are not satisfactory. It is the responsibility of the applicant to see that all credentials are forwarded to the Office of Admissions of the School of Medicine.

2. Two recent photographs, with signatures, are required of each applicant.

3. Applicants for admission are required to take the Medical College Admission Test, sponsored by the Association of American Medical Colleges, in advance of the academic year for which application is made.

4. A fee of \$15 to defray the cost of completing the records for consideration by the Committee on Admissions must accompany each application. This fee applies to students whose premedical training was completed at this University as well as to students who have not previously attended The George Washington University.

ENTRANCE REQUIREMENTS

A minimum of 90 semester hours applicable toward a degree in an approved College of Arts and Sciences are required including:

Biology (including 4 hours of laboratory) _____ 3

A course in either general biology or zoology

Chemistry:

Inorganic (including 4 hours of laboratory) _____ 3

Qualitative analysis may be counted as part of this requirement.

Organic (including laboratory) _____ 0-3

The equivalent of a one-year college course

English Composition and Literature _____ 6

Physics (including at least 2 hours of laboratory) _____ 3

With the exception of these specific requirements applicants are urged to follow their personal interests in developing their premedical courses of study. Commanding academic standing and a well balanced college program are the criteria by which an applicant is judged.

While well-qualified candidates are eligible for admission after completing the minimum 90 semester-hour requirement, the majority of applicants are found to be better prepared for the study of medicine after four years of college work.

ADVANCED STANDING

A student who has satisfactorily completed part of the requirements for the degree of Doctor of Medicine may apply for advanced standing if his work has been equivalent to that required by The George Washington University School of Medicine. Before final admission to the third year class, the applicant must have passed Part I of the National Board Examinations.

SELECTION PROCEDURES

The Committee on Admissions is guided in the selection of students by the applicant's academic ability, the results of the Medical College Admission Test, and personal qualifications as determined by letters of reference and personal interview. Applicants are interviewed on invitation by the Committee.

Each applicant is notified of the Committee's decision as soon as possible.

An applicant who is offered a place in a class is required, within two weeks, to notify the Office of Admissions of the School of Medicine of his intent to accept the place reserved for him. A deposit of \$100 must be remitted not later than January 15, prior to the opening of classes of the academic year for which he applied. This

deposit will not be refunded after January 15th. It will be credited toward the tuition for the first semester.

Accompanying the offer of a place in class will be forms for a report on physical condition. This report must be completed and returned to the Office of Admissions of the School of Medicine by the student's physician within two months of receipt of the letter of acceptance.

REGISTRATION

For the academic year 1964-65, registration will be conducted at the Medical School, 1335 H Street NW., from 10:00 A.M. to 1:00 P.M., September 10. Registration is for a period of one academic year.

FEES AND FINANCIAL REGULATIONS

The following fees were adopted for the academic year 1963-64:

Application fee	\$15.00
Tuition fee, for each academic year	1,425.00
Fee for special examinations, for each subject	5.00
Residence fee, charged each student granted "leave of absence" status for the academic year in the School of Medicine	50.00
Graduation fee	25.00

PAYMENT OF FEES

Fees for the year are \$1,450, payable in two installments of \$725 each in advance of the beginning of each semester.

All fees are payable at the Office of the Cashier of the University, 725 Twenty-first Street NW., except as some other arrangement may be announced. Amounts due must be paid on or before registration day for the full semester and on or before such date as may be announced by the Office of the Vice President and Treasurer for the spring semester. (See the Calendar.)

Registration in the School of Medicine is for the full academic year. After a student has entered the courses of instruction he is obligated for the full tuition. Acceptance by the School of Medicine of a student's fees does not in any way obligate the School to accept the student for any subsequent year and the right is reserved to require the withdrawal of any student whenever, in the interest of the student or the School, the Faculty deems it advisable to do so.

COST OF TEXTBOOKS AND STUDENT EQUIPMENT

The minimum cost of necessary textbooks and student equipment (microscope, drawing materials, glass slides, clinical thermometer, stethoscope, hemoxymeter, uniform, etc.) is approximately as follows: first year, \$100; second year, \$275; third year, \$100; fourth year, \$100; total \$1,125.

A fee of \$1 a semester is charged for the use (optional) of a locker.

FELLOWSHIPS, SCHOLARSHIPS, PRIZES, FINANCIAL AID

The following fellowships, scholarships, prizes, and loan funds are limited to students in the School of Medicine. The University offers many others which are open to medical students. A special bulletin containing a complete list and full information may be obtained from the Chairman of the Committee on Scholarships, The George Washington University, Washington, D. C. 20006.

FELLOWSHIP

Samuel Jordan Graham Fellowship in Surgery (1961).—By bequest, in memory of John and Mrs. Graham. The income from this fund, up to \$2,000, may be used to assist students who are pursuing postgraduate study or research, preferably in surgery, at the School of Medicine.

If no individual is conducting such work or deserving of the award, the income may be used to provide one or more scholarships (to cover tuition and other school expenses deemed appropriate) for undergraduate students in the School of Medicine. Application should be made to the Chairman of the Department of Surgery no later than March 1.

SCHOLARSHIPS

Scholarships awarded to students in the School of Medicine are credited for the academic year unless otherwise specified. Each holder must carry a full schedule of academic work during the period for which the scholarship is awarded. Applicants must have established an academic record for one semester in the School of Medicine. They should apply on prescribed forms which must be filed in the Office of the Associate Dean of the School of Medicine, 1339 H Street NW., Washington, D. C., not later than April 1 preceding the academic year for which the scholarship is to be awarded.

Avalon Foundation Scholarship Fund (1960).—An unrestricted supplement to the scholarship funds of the Medical School, to be expended in conformity with the School's policy and available until expended for nonrefundable grants to students. Scholarship aid from this fund shall be granted "to students on a combined basis of financial need and scholarship attainment." Available 1963-64.

Anna Bartsch Hospital Intern Scholarship (1946).—A partial scholarship established by Dr. Anna Bartsch-Dunne as a memorial to her mother. Awarded to a medical intern in the University Hospital.

Anna Bartsch Medical Student Scholarship (1946).—A \$500 scholarship established by Dr. Anna Bartsch-Dunne, as a memorial to her mother. Awarded to a medical student in the School of Medicine "of outstanding scholarship, character, and promise, who intends to make the practice of medicine her life profession".

Ernest Lemont Bradley Scholarship (1954).—A partial scholarship, by bequest of Vice R. H. Bradley in memory of her son, for a student in the School of Medicine.

Bradley Alumni Club Scholarship Fund (1959).—Established to financially assist medical students in the School of Medicine.

Joseph Collins Foundation Scholarships.—Available to medical school students on application through the Office of the Dean of the School of Medicine.

Robert Woods Johnson Scholarship Fund.—Available to medical school students upon application through the Office of the Dean of the School of Medicine.

Ki-Wives Scholarship.—A full-tuition scholarship available to a student or students in the School of Medicine.

Medical Research Scholarships and Traineeships.—For student participation in the research programs of the School of Medicine or special training in research methods. Research scholarships are ordinarily awarded for full-time activity during the summer months; research traineeships support part-time work during the academic year. Scholars are "matched" with members of the faculty in accordance with their mutual interests. Trainees are designated by the departments responsible for the programs. These programs have been sponsored by the National Institutes of Health, the National Foundation, Lederle Laboratories, and Tobacco Industry Research Committee. In addition a number of research scholarships have been made available through the American Cancer Society Institutional Grant and the Washington Heart Association.

Chas. Pfizer Medical Scholarship Program (1962).—Established to financially assist a student in the School of Medicine.

Gerald Pollin Scholarship (1963).—Two \$500 scholarships established by Dan and Reba Pollin in memory of their son. Awarded annually to students, preferably in the third or fourth year of the School of Medicine, who have demonstrated special interest and proficiency in the science and study of Psychiatry.

Linda Joy Pollin Scholarship (1963).—A partial scholarship established by Dan and Reba Pollin in memory of their niece. Awarded to a woman student in the School of Medicine who intends to make the practice of medicine her life profession.

David Perry Steinman Memorial Scholarship Fund (1960).—Established by friends and classmates. Awarded annually to a sophomore in the School of Medicine on the basis of good and academic performance.

Tuition Scholarship (1979).—A full-tuition scholarship presented by a friend of the School of Medicine, to be awarded to a worthy student for one year.

University Hospital Scholarships in Medical Technology.—Ten scholarships are available, each to cover the cost of 24 semester hours of the 30 in the last year of the curriculum leading to the degree of Bachelor of Science in Medical Technology. Inquiries should be directed to the Department of Pathology, The George Washington University Hospital.

PRIZES

Allie S. Freed Prize (1957).—Awarded annually to a member of the graduating class in the School of Medicine who has demonstrated exceptional proficiency in the field of preventive medicine.

Alec Horwitz Prize (1959).—A prize of \$100 awarded annually to a senior who has demonstrated exceptional proficiency in the field of surgery.

Huron W. Lawson Prize (1957).—A prize of \$100 established by Mrs. Lawson in memory of her husband, who was a distinguished member of the Medical Staff of the University, is presented annually to a member of the graduating class who has demonstrated exceptional proficiency in the field of obstetrics and gynecology.

Julius S. Neviasser Prize in Orthopedic Surgery (1956).—A prize of \$100 awarded annually to the senior in the School of Medicine who scores the highest grade in a written examination and clinical aspects of orthopedic surgery.

John Ordronaux Prize.—By bequest, \$150 awarded annually to the member of the graduating class of the School of Medicine who has the highest scholastic standing.

FINANCIAL AID

The following loan funds are available to students in the School of Medicine in accordance with the qualifications placed thereon by the donors. Inquiries should be directed to the Office of the Associate Dean of the School of Medicine.

University Loan Fund.—The Trustees of the University have made available a fund for short-term loans to students to provide for partial payment of tuition. Application should be made three days prior to the dates on which tuition installments are due.

American Medical Association Medical Education Loan Guarantee Program.—Available to medical school students (beyond the first year of medicine) upon application to the Office of the Dean of the School of Medicine.

Edith K. Carr Medical School Loan Fund.—A fund of \$5,000 established by Mrs. Carr for loans to students in the School of Medicine.

Joseph H. Himes Loan Fund.—A fund of \$10,000 is available for loans to students in the School of Medicine.

Kellogg Medical School Loan Fund.—A fund of \$21,500, established by the W. K. Kellogg Foundation of Battle Creek, Michigan, for loans to students in the School of Medicine.

School of Medicine Loan Fund.—A fund of \$22,000, contributed by medical students, is available for loans to students in the School of Medicine.

Pfizer Medical School Loan Fund.—A fund of \$1,000, established by Chas. Pfizer & Co., Inc., for loans to students in the School of Medicine.

Sutherland Medical School Loan Fund.—A fund of \$1,650, established by Rose L. Sutherland, for loans to students in the School of Medicine.

Because many parents may wish some option in meeting and financing all or part of the cost of a college education, the University offers educational loan plans through the Guard Trust Corn Exchange Bank in Philadelphia, Pennsylvania, and Funds for Education, Inc., Manchester, New Hampshire.

Although similar in purpose, the two plans mentioned above vary somewhat in coverage and conditions. One year and multiple year plans are available for both. Both plans provide insurance covering the life and health of the sponsor. The Guard Assured Education Plan may cover tuition, fees and/or residence hall charges only. Application is made through the University and advances are paid directly to the University. No application fee is charged.

Funds for Education, Inc., may cover all expenses and advances can be made directly to either the University or to the sponsor of the student. Application is made directly to Funds for Education, Inc. A \$10 deposit with application is required.

Individuals over twenty-one years of age who are employed full-time are also eligible to apply. They may sponsor their own contracts, provided they meet the conditions specified by the plan for which they are applying.

Brochures and applications describing both of these plans are available in the Office of the Vice President and Treasurer.

REGULATIONS

ATTENDANCE

A student is not permitted to attend classes until registration has been completed and fees due have been paid. Regular attendance is required.

GRADES

A—excellent; *B*—good; *C*—passing; *D*—condition; *F*—failure; *I*—incomplete. The passing grade in each subject is *C* or above.

The symbol *I* indicates that the required work of the course has not been completed for reasons acceptable to the Dean. An "incomplete" must be removed by arrangement with the department concerned before the student may advance to the work of the following year.

A student receiving a grade of *D* or *F* in any subject may not advance to the work of the following year until he has complied with such recommendations by the Committee on Scholarship as are approved by the Faculty.

QUALITY-POINT INDEX

For purposes of quantitative evaluation of academic performance a "quality-point" index is computed on the basis of *A*, four points; *B*, three points; *C*, two points; *D*, one point; *F*, zero points. A condition *D*, is removed one point is assigned. Zero points are assigned for a condition which is not removed or for a grade of *F*.

EXAMINATIONS

Examinations, which may be written, oral, or practical, will be held during and at the end of each semester.

All students in the School of Medicine are required to take Part I and Part II of the National Board Examinations.

GRADUATION

APPLICATION FOR GRADUATION

Application for a degree should be filed in the Office of the Registrar by February 28 of the senior year.

PRESENCE AT GRADUATION

A candidate is required to be present at the graduation exercises unless written application for graduation *in absentia* is approved by the Dean.

RIGHT TO DISMISS STUDENTS

The right is reserved by the University to dismiss or exclude any student from the University, or from any class or classes, whenever, in the interest of the student or the University, the University Administration deems it advisable.

RIGHT TO CHANGE RULES

The University and its various colleges, schools, and divisions reserve the right to modify or change requirements, rules, and fees. Such regulations shall go into force whenever the proper authorities may determine.

THE DEGREE OF DOCTOR OF MEDICINE

Upon the satisfactory completion of the requirements of the School of Medicine, the degree of Doctor of Medicine is conferred.

COMBINED ARTS AND MEDICINE CURRICULUM

In order to be recommended for the degree of Bachelor of Arts, the candidate must complete at least 90 semester hours of prescribed college work (at least 30 hours and one year of residence must be completed in Columbian College of Arts and Sciences) and the first year of the medical curriculum. Upon satisfactory completion of the fourth year of the medical curriculum the student becomes eligible for the degree of Doctor of Medicine.

REQUIREMENTS FOR THE DEGREE

Every candidate for graduation with the degree of Doctor of Medicine must be at least twenty-one years of age and free of all indebtedness to the University. He must have completed satisfactorily not less than four academic years of study as a matriculated student in Medicine, completed all required courses, and passed satisfactorily all prescribed examinations.

HONORS

A candidate who has completed the four-year medical course with a quality-point index of 3.50 or above, may be recommended by the Faculty for graduation "with distinction."

STUDENT LIFE

HEALTH SERVICES

The Health Services Staff assists students with their medical needs by advice and treatment, by proper referral when necessary, and by cooperation with other physicians. For medical emergencies and health consultations there is, on the campus, a Student Health Clinic open from 9 A.M. to 5 P.M., Monday through Friday during the academic year and Summer Sessions, with physician and nurse in attendance. There is also a rest room for women, with a graduate nurse in charge. For night and week-end emergencies, students may go to the emergency room of the University

Hospital for treatment. The basic fee for this visit will be paid by the Health Services, and all other charges will be the responsibility of the student. This arrangement is for emergency care only.

Medical privileges include: (1) physical examination of all students who are applicants for courses in Physical Education;* (2) three visits in any one illness by a member of the Health Services Staff, office or residence (District of Columbia); (3) hospitalization, including board and nursing, in the University Hospital for not more than one week during any twelve-month period—the necessity to be determined by the Director of Health Services.† All additional hospital charges for operating room, anesthetics, laboratory, X-ray, medications, or any special services must be paid by the student. Expenses incurred for examinations and treatment by specialists, such as eye refraction and provision of glasses; orthopedic examinations and application of cast or other appliance; laboratory and X-ray work; and surgical operations must be paid by the student.

This medical benefit applies only to illness or disability incurred while currently enrolled in the University. It does not apply to illness or disability incurred between the last day of examinations for a semester or summer session and completion of registration for the next semester or summer session.

The student is allowed, if he so desires, to engage physicians and nurses of his own choice, but when he does so he will be responsible for the fees charged.

Rules: (1) The Director of Health Services is empowered to limit or deny the medical benefits where, in his discretion, a student has, by his misconduct or breach of the rules of the University, made himself ineligible; (2) the Director of Health Services has authority to determine the necessity and length of hospitalization; (3) a student not currently enrolled or one who has severed his connection with the University is ineligible for medical benefits; (4) a student intending to train for an athletic team is required to pass a thorough examination at the beginning of each semester; (5) hospitalization is not available to those students availing themselves of other hospitalization coverage for the same illness.

The University is not responsible for injuries received in intercollegiate or intramural games, or in any of the activities of the physical education departments.

PHYSICAL EXAMINATIONS

All first-year students are required to have a comprehensive physical examination prior to admission to the School of Medicine. The students are informed of significant findings and advised regarding such measures as will tend to help them maintain a high standard of health.

In addition medical students benefit from the complete Tuberculosis Case Finding Program which the School maintains. Under this program all students receive tuberculin tests, X-ray examinations, and such special attention from chest specialists as is necessary to reduce to a minimum the dangers from tuberculosis. Students are immunized against those diseases for which proven prophylaxis exists.

RESIDENCE HALLS

Complete information concerning the University's residence halls is available at the Office of the Dean of Men or the Office of the Dean of Women, The George Washington University, Washington, D. C. 20008.

* A charge for a special physical examination is made by the University if a student fails to appear for a physical examination during the period set for this purpose.
† See Rule 15 for exception.

Information concerning all off-campus housing may be obtained at the Office of the Dean. The reservation of rooms in private houses must be made by students.

Admission to the University does not include a room reservation. A separate application for a room should be made well in advance (for the fall semester by May 1st, for the spring semester by January 5th). Rooms are leased for the academic year, and a deposit of \$100, which is credited toward the fall semester room charge, is required. If notice of withdrawal or cancellation of room reservation is received prior to June 1, \$50 of the deposit will be refunded. Room rentals are payable in advance by the semester.

All unmarried women students under twenty-two years of age and enrolled for twelve or more hours of academic work during the fall or spring semester or six or more hours during a summer session are required to live in the University's residence halls or at home with their parents. Upon written approval of their parents and the permission of the Dean of Women, freshman women may live with immediate relatives and upperclass women may live with contemporaries of their parents. Under no circumstances may an unmarried woman student under twenty-two years of age taking a full academic program live in an apartment with her contemporaries.

Unmarried freshmen men under the age of twenty-one and enrolled for 12 or more hours of academic work during the fall or spring semester or 6 or more hours during a summer session are required to live in the University's residence halls or at home with their parents, except by special permission.

HONOR SOCIETIES

Alpha Omega Alpha.—National Honor Medical Society. Members of the Junior and Senior classes meeting the qualifications specified by the constitution of the Society are eligible for election to membership.

William Beaumont Medical Society.—Medical students showing unusual ability for medical writing and research are elected by the active members of this society.

Howard Kane-A. F. A. King Obstetrical Society.—The fifteen students in the third and fourth year classes who maintain the highest grades in their work in obstetrics are eligible for membership.

Smith-Reed-Russell Society.—Students of the third and fourth years who maintain a quality-point index of 3.30 or higher are eligible for membership.

RECREATION

The nation's capital provides abundant recreational resources, a large number of which are available at little or no cost. There are numerous art galleries, museums, concert halls, theaters, swimming pools, parks, and places of great historic interest. There are, in addition, the usual commercial recreation facilities found in a large city. Social activities are provided by student organizations of the University, the School of Medicine, and University sponsored programs such as intramural sports, dances, regattas, and dramatic productions. Almost every religious faith is represented in Washington by one or more churches, and much spiritual, educational, social, and recreational activity is conducted by the various church groups. There are available individual and educational facilities in Washington to meet almost any possible individual need or preference of a medical student and his family.

THE UNIVERSITY HOSPITAL

The Medical Staff consists of the following groups: Emeritus, Honorary, University, and Courtesy.

Physicians on the faculty and staff of instruction of the School of Medicine are eligible for appointments to the University Hospital staff. The Administrator of the Hospital and the Director of Nursing are ex officio members.

OFFICE OF THE MEDICAL DIRECTOR

John Parks, M.D., *Medical Director*
 Alvin Edward Parrish, M.D., *Co-ordinator of Clinical Activities*
 Alfred Braglia, M.D., *Secretary of the Medical Staff*
 Clayton Bernard Ethridge, M.D., *Director of Post Graduate Medical Education*
 Virginia Louise Jones, *Secretary, Office of the Medical Director*

DEPARTMENTS AND SECTIONS

Department of Anesthesiology: Charles Seymour Coakley, M.D., *Chief*
 Department of Medicine: Thomas McPherson Brown, A.B., M.D., *Chief*
 Heart Station: John McCallum Evans, A.B., M.D., *Director*
 Section of Allergy: Halla Brown, M.D., *Chairman*
 Section of Cardiology: John McCallum Evans, A.B., M.D., *Chairman*
 Section of Dermatology: Robert Sexton Hagdon, B.S., M.D., *Chairman*
 Section of Gastroenterology: Thomas Stone Sappington, A.B., M.D., *Chairman*
 Section of Infectious Diseases: Monroe James Romansky, A.B., M.D., *Chairman*
 Section of Internal Medicine: Clarence Richard Hartman, A.B., M.D., *Chairman*
 Section of Metabolic Diseases: Louis Katz Alpert, M.D., *Chairman*
 Section of Pulmonary Diseases: James Joseph Feffer, A.B., M.D., *Chairman*
 Department of Neurology and Neurological Surgery: James Winston Watts, M.D., *Chief*
 Electroencephalographic Laboratory: Harold Stevens, Ph.D., M.D., *Director*
 Department of Obstetrics and Gynecology: Robert Henry Barten, B.S., M.D., *Chief*
 Department of Ophthalmology: John William McTear, A.B., M.D., *Chief*
 Department of Pathology and Clinical Pathology: Thomas Martin Peery, A.B., M.D., *Chief*
 Cytology Laboratory: Lois Irene Platt, A.B., M.D., *Director*
 Department of Pediatrics: William Allen Howard, A.B., M.D., *Chief*
 Department of Physical Medicine and Rehabilitation: Charles Samuel Wise, B.S., M.D., *Chief*
 Department of Preventive Medicine and Community Health: Joseph Francis Sadusk, Jr., A.B., M.D., *Chief*
 Department of Psychiatry: Leon Yochelson, A.B., M.D., *Chief*
 Department of Radiology: William Woodrow Stumbo, M.D., *Chief*
 Department of Surgery: Brian Blades, A.B., M.D., *Chief*
 Section of General Surgery: Brian Blades, A.B., M.D., *Chairman*
 Section of Urology: Karl Hayden Wood, Ph.D., D.D.S., *Chairman*
 Section of Orthopedics: John Plank Adams, B.S., M.D., *Chairman*
 Section of Otorhinolaryngology: James Jerry McFarland, Jr., B.S., M.D., *Chairman*
 Section of Plastic Surgery: Gordon Sparks Letterman, B.S., M.D., *Chairman*

Section of Urology: Leon Richard Culbertson, B.S., M.D., *Chairman*
University Clinics: Joseph Francis Sadusk, Jr., A.B., M.D., *Director*; Robert Sexton
Higdon, B.S., M.D., *Associate Director*
Cancer Clinic: Calvin Trexler Klopp, A.B., M.D., *Director*
Nursing: Margaret Ruth Emanuel, R.N., A.M., *Director*

COMMITTEES OF THE MEDICAL STAFF

EXECUTIVE COMMITTEE

John Parks, *Chairman*

R. H. Barter, Brian Blades, Alfred Bragelio, T. M. Brown, C. S. Coakley, Margaret
Emanuel, C. B. Ethridge, R. S. Higdon, W. A. Howard, V. F. Ludewig, J. W. Mc-
Tigue, A. E. Parrish, T. M. Peery, J. F. Sadusk, Jr., William Stanbro, J. W. Watts,
C. S. Wise, L. T. Yochelson

JOINT CONFERENCE COMMITTEE

V. F. Ludewig, John Parks, A. E. Parrish, T. M. Peery, J. F. Sadusk, Jr.

MEDICAL RECORDS COMMITTEE

S. W. Bush, *Chairman*

P. C. Adkins, Madeline Brown, F. P. FETTERLACCIO, Anna Jones, J. W. Sites, *Chief*
Residents

INTERN AND RESIDENT COMMITTEE

V. F. Ludewig, *Chairman*

P. C. Adkins, R. H. Barter, C. B. Ethridge, J. M. Evans, A. E. Parrish, T. M. Peery,
J. E. Rankin

TISSUE COMMITTEE

G. S. Letterman, *Chairman*

T. M. Leonard, William Newman

CANCER COMMITTEE

C. T. Klopp, *Chairman*

L. K. Albert, W. P. McKelway, William Newman, F. P. FETTERLACCIO, W. J. Nelson,
H. C. Pierpont

THERAPEUTICS COMMITTEE

W. R. Felts, *Chairman*

L. K. Albert, F. D. Cooper, J. A. Dushabek, J. M. Evans, Louise O'Neal, J. R.
Therapist

PATIENT CARE COMMITTEE

R. H. Barter, Brian Blades, T. M. Brown, C. B. Ethridge, V. F. Ludewig, A. E. Parisk, J. E. Rankin, Maxine Schurter, Irene Tamagna, H. P. Treichler

UNIVERSITY HOSPITAL ADMINISTRATIVE STAFF

OFFICE OF THE ADMINISTRATOR

Victor Frederick Ludewig, B.S., *Administrator*
 Fred Augustus Menk, *Associate Administrator*
 Francisco Paolo Ferraraccio, B.S., *Assistant Administrator*
 Raymond Francis Whitehair, *Administrative Assistant*
 John Charles Donaher, Jr., M.S., *Research Analyst*
 Jeanne Simon Swope, *Secretary, Office of the Administrator*
 Sadie Estelle Oakley, *Chief, Admission Office*
 Roger William Baker, B.S., *Assistant Comptroller*
 Robert Hamilton Thompson, B.S., *Director of Food Service*
 Joanne Louise Styer, B.S., *Chief, Therapeutic Dietitian*
 Charles Clark Haven, *Executive Housekeeper*
 Frank Leonard Sasher, *Manager, Laundry Department*
 Madeline Lenora Brown, R.R.L., A.B., *Medical Record Librarian*
 Margaret Ruth Emanuel, R.N., A.M., *Director of Nursing*
 Louise O'Neal, R.N., A.B., *Assistant Director of Nursing*
 Frederick Joseph Kessler, B.S., M.B.A., *Administrative Assistant, University Clinics*
 Franklin Dero Cooper, M.S., *Chief Pharmacist*
 Thelma Moore, *Chief Telephone Operator*

THE GEORGE WASHINGTON UNIVERSITY HOSPITAL

The George Washington University Hospital, with a capacity of 427 beds, is a modern teaching facility for students of the School of Medicine and House Staff. Annual admissions number approximately 20,000; clinic visits are about 40,000 a year. The University Hospital is on Pennsylvania Avenue at Washington Circle. It is fully approved by the American Medical Association, the American Hospital Association, the American College of Surgeons, and the Joint Commission for the Accreditation of Hospitals.

The Council on Medical Education and Hospitals of the American Medical Association and the various specialty boards have approved the University Hospital for residency training in anesthesiology, cardiac disease, internal medicine, neurology, obstetrical surgery, obstetrics-gynecology, orthopedic surgery, pathology, physical medicine and rehabilitation, plastic surgery, psychiatry, radiology, surgery, thoracic surgery, and urology. In addition, it has straight internships in medicine, pathology, and surgery; and a mixed internship in obstetrics and gynecology.

Junior and senior students of the School of Medicine are assigned to the University Hospital, as clinical clerks and in the University Clinics. Regular conferences for students, house staff, and attending physicians are held.

The George Washington University Cancer Clinic, housed in the nearby Helen L. and Mary E. Warwick Memorial Building is part of the University Hospital clinical

facilities. Cancer detection and chemotherapeutic and follow-up care, including a supervised home-care program, are among the activities of the Clinic. Approximately 2,500 new patients are seen in the Cancer Clinic each year. Excellent research laboratories form an important part of this facility. The Clinic has been approved by the American College of Surgeons.

Other major teaching activities include a residency program in hospital administration; close affiliation with the University's graduate program in hospital administration; programs in Medical Technology leading to the Bachelor of Science degree as well as to a certificate; and an affiliation for the training of practical nurses.

The Hospital has an excellent branch medical library. The House Staff can also arrange to use libraries of the School of Medicine and the University and the outstanding city and federal libraries and record collections.

INTERN PROGRAMS

Straight internships are available in Medicine, Pathology, and Surgery. A mixed internship is available in Obstetrics and Gynecology.

RESIDENT PROGRAMS

Sixty-six approved residencies are offered in anesthesiology, cardiac diseases, internal medicine, neurologic surgery, neurology, obstetrics-gynecology, orthopedic surgery, pathology, physical medicine, plastic surgery, psychiatry, roentgenology, surgery, thoracic surgery, and urology. Residency programs are from one to four years in duration, depending upon the service. Residents in the University Hospital also receive appointments as members of the faculty of the School of Medicine with active teaching responsibilities.

FELLOWSHIP PROGRAMS

Fellowships, through the School of Medicine, of one or two years are available in surgery, anesthesiology, cardiology, chest diseases, gastroenterology, hematology, infectious diseases, metabolic diseases, oncology, physical medicine, renal diseases, rheumatic disease, surgery, thoracic surgery, and University Clinics.

All appointments are for one year with the privilege of applying for continuation on the House Staff. In several of the intern, residency, and fellowship programs, excellent affiliations are maintained with local and governmental hospitals. Inquiries and applications for internships and residencies should be addressed to the Chief of the Department or to the Medical Director, the George Washington University Hospital, 901 23rd Street, NW., Washington, D. C. 20037.

Information relative to fellowships may be obtained from the Chief of the Department concerned or from the Director of Postgraduate Medical Education, in care of the Hospital.

MEDICAL TECHNOLOGY COURSE

This course is open to candidates for the degree of Bachelor of Science in Medical Technology, offered by Columbian College of Arts and Sciences, and to the other applicants meeting the requirements of the Registry of Medical Technologists of the American Society of Clinical Pathologists. These requirements, fully satisfied by the Columbian College program, consist of 3 years (90 semester hours or 135 quarter hours) of college work in any college or university accredited by a recognized stand-

ardizing association, including certain specific courses in the science field. The specific science requirements are as follows: *Chemistry*—a minimum of 4 semesters or 6 quarters (16 semester hours or 24 quarter hours) of studies acceptable toward a major in chemistry and including lecture and laboratory; *Biologic Sciences*—a minimum of 4 semesters or 6 quarters (16 semester hours or 24 quarter hours) of studies acceptable toward a major in biologic science and including lecture and laboratory; *Mathematics*—a minimum of 3 semester hours or 4 quarter hours of college mathematics.

For students enrolled in Columbian College of Arts and Sciences as candidates for the degree of Bachelor of Science in Medical Technology, the Medical Technology Course constitutes the final (fourth) year of qualification for the degree.

In the case of those who have taken their prerequisite work in some other college or university, satisfactory completion of the Medical Technology Course will not satisfy the requirements for the degree from Columbian College.

The Medical Technology Course consists of 12 months of didactic and practical work in clinical laboratory procedures, offered by the Department of Pathology at the University Hospital. Students ordinarily begin this course with the fall semester, but under exceptional circumstances may begin at other times.

A limited number of scholarships are provided by the University Hospital for students enrolled in the fourth year of the degree program. (See page 11.) All students in this fourth year must provide themselves with uniforms; laundry of uniforms is provided by the University Hospital. A cash allowance of \$65 a month is granted during the last 6 months of the fourth year in training.

Upon satisfactory completion of the course a certificate is awarded and the candidate is eligible for the national certifying examination given by the Registry of Medical Technologists.

Enrollment in the Medical Technology Course is strictly limited so that personal instruction can be given. Acceptance to the Columbian College degree program does not necessarily assure acceptance into the Hospital program. Inquiry about the course should be sent directly to the Department of Pathology, The George Washington University Hospital, Washington, D. C. 20037.

ALUMNI AND ALLIED ASSOCIATIONS

THE GENERAL ALUMNI ASSOCIATION

The objectives of this Association are to unite the graduates who wish to associate themselves for charitable, educational, literary, and scientific purposes, and to promote the general welfare of the University.

Eligible members are those who have matriculated in any school of the University and who have left the University in good standing, or any person who is or has been a member of the teaching, research, or administrative staff of the University, or of the Board of Trustees of the University. Active members are those eligible members who are current contributors to or life members of The George Washington University.

General Alumni Association, the Alumni Association of any school of the University, or contributors to the Annual Support Program.

The Alumni Office is in Bacon Hall, 2000 H Street NW., Washington, D. C. 20006.

All alumni are urged to keep the Alumni Office informed of changes of address or occupation and to supply information with regard to their fellow alumni.

THE GEORGE WASHINGTON UNIVERSITY MEDICAL ALUMNI ASSOCIATION

The George Washington University Medical Alumni Association incorporated in 1950, continues the organization previously known as The George Washington University Medical Society. It has been affiliated with the General Alumni Association since 1926.

The stated purposes of the Association are as follows: "This shall be a nonprofit organization international in scope, whose objectives shall be to provide constructive services for the alumni of The George Washington University School of Medicine, for furthering the art and science of medicine, research, and for the promotion of the welfare of The George Washington University School of Medicine, its students, The George Washington University Hospital and its trainees."

Active membership in the Association consists of: all graduates of the School of Medicine; current members and, on application, past members of the teaching staff of the School of Medicine who hold Doctor's degrees; Doctors of Medicine who have had one or more years of postgraduate training in The George Washington University Hospital.

Junior membership consists of all members of the student body of the School of Medicine during the time they are students.

The Medical Alumni Association maintains an office in the School of Medicine Building at 1335 H Street NW., Washington, D. C.

OFFICERS OF THE ASSOCIATION FOR THE YEAR 1963-64

President.—William P. McKelway, M.D. 1950

President Elect.—George Speck, M.D. 1941

First Vice President.—Richard E. Palmer, A.B., M.D. 1944

Second Vice President.—Virginia A. Duggins, A.M. 1951, M.D. 1955

Secretary.—Frank N. Miller, Jr., B.S. 1943, M.D. 1948

Treasurer.—Jerome H. Epstein, A.M. 1948, M.D. 1953

Executive Committee:

Frederick Y. Donn, Jr., M.D. 1941

Edward E. Ferguson, M.D. 1936

Charles S. White, Jr., M.D. 1942

Alfred E. Brigulio, M.D. 1936

Howard E. Ticktin, A.B. 1950, M.D. 1954

John W. DuCher, M.D. 1943

COURSES OF INSTRUCTION

On the following pages of this CATALOGUE, are listed the courses of instruction offered by the School of Medicine. The School of Medicine serves other divisions of the University by making available to nonmedical students certain undergraduate and graduate courses in the following fields: Anatomy, Microbiology, Biochemistry, Pathology, Pharmacology, Physical Medicine, and Physiology. The courses listed are subject to some slight change. The University reserves the right to withdraw any course announced.

EXPLANATION OF COURSE NUMBERS AND SYMBOLS

A number in parentheses after the name of a course indicates number of semester hours of credit which may be earned by nonmedical students.

First-year courses are numbered from 101 to 200; second-year courses, from 201 to 300; third-year courses, from 301 to 400; and fourth-year courses, from 401 to 500.

Courses offered in the School of Medicine for nonmedical students.—Courses numbered from 101-200 are planned for upper-division students in undergraduate curricula. They may be credited toward higher degrees only when registration for graduate credit has been approved at the beginning of the course by the dean responsible for the graduate work and by the officer of instruction, and when the completion of additional work has been certified by the officer of instruction. Courses numbered from 201 to 300 are planned for graduate students.

ANATOMY*

Professors I. R. Telford (*Chairman*), Paul Calabrisi

Professorial Lecturers T. D. Stewart, J. L. Angel

Associate Professors F. D. Allan, T. N. Johnson

Associate Professorial Lecturer B. S. Blumberg

Assistant Professors J. B. Christensen, J. C. Bartone

Lecturer L. E. Church

Clinical Instructors R. N. Brown, K. O. Cho

101 Gross Anatomy

Regional dissection of the human body, supplemented with lectures and quiz sections. Study of X-ray anatomy to emphasize the functional aspects of the position, shape, and relation of the viscera and skeletal components. (Fall—14 hours a week.)

103 Human Embryology

The origin and development of the human body. Special emphasis on the value of embryology in interpreting anatomical anomalies and variations as seen on gross dissection, surgery, obstetrics, and pathology. (Fall—2 hours a week.)

* Staff of Instruction for the academic year 1963-64

- 104 **Neuroanatomy** Johnson and Staff
The macroscopic and microscopic study of the central nervous system and the special sense organs. Emphasis on such dynamic aspects as development, pathways, lesions, etc. (Fall—2 hours a week.)
- 105 **Microscopic Anatomy** Telford and Staff
Study of the detailed minute structure of cells, tissues, and organs of the human body, with emphasis on the relation of structure to function. Recognition and interpretation of histological sections tested by practical examinations. (Fall—6 hours a week.)
- 201 **Gross Anatomy (8)** Calabrisi and Staff
For qualified nonmedical graduate students. Same as Anatomy 101. Laboratory fee, \$30. (Fall—as arranged.)
- 203 **Human Embryology (2)** Allan and Staff
For qualified nonmedical graduate students. Same as Anatomy 103. (Fall—2 hours a week.)
- 204 **Neuroanatomy (2)** Johnson and Staff
For qualified nonmedical graduate students. Same as Anatomy 104. Laboratory fee, \$13. (Fall—as arranged.)
- 205 **Microscopic Anatomy (4)** Telford and Staff
For qualified nonmedical graduate students. Same as Anatomy 105. Laboratory fee, \$13. (Fall—as arranged.)
- 221-22 **Seminar (1-1)** Telford and Staff
Research reports and discussions of special topics by the Staff and graduate students. For graduate students. Medical students are encouraged to attend. (Academic year: 1 hour a week—as arranged.)
- 249-50 **Introduction to Medical Research* (3-3)** The Staff
Primarily for graduate students. A comprehensive introduction to the major medical research techniques—*anatomical, statistical, physical, chemical, electrical, and radioisotope*—as applied to biological materials in the medical sciences. Laboratory fee, \$7.50 a semester. (Academic year—W 1-5 pm.)
- 295-96 **Research (arr.)** The Staff
Fee to be arranged. (Academic year—as arranged.)
- 299-300 **Thesis (3-3)** The Staff

ANESTHESIOLOGY †

Professors C. S. Coakley (Chairman), Seymour Alpert
Clinical Professor D. H. Stubbs
Associate Professor C. R. MacCordy
Assistant Professors Paula Kaiser, H. E. Curtis, Helene Werner, K. H. Hanson, Patricia Russell
Assistant Clinical Professors S. N. Albert, Maria Benzinger
Instructors Virginia Porter, Marie-Louise Levy
Clinical Instructors W. E. Bageant, Allen Widome, Charles Gruenwald, E. J. Dealy

* This is an interdepartmental course. The student should register in the department directing his research.
† Staff of Instruction for the academic year 1963-64

Assistants B. A. Bergherm, A. R. Bergman, J. G. Chaname, J. R. Glazer, P. M. Pabon, Hushang Tohidloo

320 Anesthesiology

The fundamentals of anesthesia are reviewed and correlated with other medical specialties. (Spring—1 hour a week.)

421-22 Anesthesia Seminar

Students attend anesthesia seminars during their surgical clinical clerkships. University Hospital. (Academic year—1 hour a week.)

433-34 Advanced Anesthesiology

Students are rotated through the work of the department for a period of two weeks and assigned to work in the operating rooms and to attend conferences and seminars. For the more advanced students a three-week elective is offered. (Academic year—as arranged.)

BIOCHEMISTRY*

Professors J. H. Roe (Emeritus), C. R. Treadwell (Chairman)

Professorial Lecturers W. R. Carroll, Arthur Weissbach, Leon Swell, Sidney Vahouny, friend, C. A. Kuether, W. W. Burr

Associate Professors B. W. Smith, G. V. Vahouny, J. M. Bailey

Assistant Professor A. R. Brecher

Fellows Kathryn Calame, Linda Gallo, S. A. Hyun, Peter Pentchev

Special Lecturers Walter Mertz, Herbert Weissbach

113-14 Medical Biochemistry

Lecture (2 hours), conference (1 hour), laboratory (6 hours). Physiological and clinical chemistry. For medical students. (Academic year—as arranged.)

221-22 General Biochemistry (4-4)

A lecture and laboratory course for nonmedical students. Prerequisite: Chemistry 152. Material fee, \$15 a semester. (Academic year—TTh 8-12 am.)

224 Biochemistry of the Enzymes (1)

Lecture course dealing with the biochemistry of the enzymes and enzyme reactions. Prerequisite: Biochemistry 113 or 221. (1964-65 and alternate years: spring—M 5 pm.)

225-26 Biochemical Procedures (3-3)

A laboratory course. Material fee, \$16 a semester. (Academic year—as arranged.)

227-28 Biochemistry Seminar (1-1)

The current literature in the field of biochemistry, mainly for graduate students, but open to a limited number of specially qualified medical students. (First half: F 5 pm. Second half: F 4 pm.)

232 Proteins and Amino Acids (1)

A lecture course. Prerequisite: Biochemistry 113 or 221. (Spring—W 5 pm.)

* Staff of Instruction for the academic year 1963-64.

- 241 *Isotopes* (2) Barr
Theoretical characterization of isotopes and their applications in biology. Attention will be given to counting, health physics and radiation safety, autoradiography and chromatography. (Spring—S 8 am.)
- 249-50 *Introduction to Medical Research** (3-3) Bailey
Primarily for graduate students. A comprehensive introduction to the major medical research techniques: anatomical, statistical, physical, chemical, electrical and radiological. This is applied to biological materials in the medical sciences. Laboratory fee, \$7.50 a semester. (Academic year—W 1-5 pm.)
- 251 *Carbohydrate Metabolism* (1) A. Weissbach
A lecture course. Prerequisite: Biochemistry 114 or 222. (1965-66 and alternate years: spring—M 5 pm.)
- 261 *Biochemistry of the Lipids* (1) Swell, Treadwell
A lecture course. Prerequisite: Biochemistry 114 or 222. (Spring—S 12 noon.)
- 295-96 *Research in Biochemistry* (arr.) The Staff
(Academic year—as arranged.)
- 299-300 *Thesis* (3-3) The Staff

DERMATOLOGY†

- Professor R. S. Higdon. (Chairman)
Clinical Professor J. Q. Gant, Jr.
Associate Clinical Professors L. S. Leland, Hayden Kirby-Smith
Assistant Clinical Professors W. G. Ballinger, C. S. Brown, Reuben Goodman, Manuel Landman
Associate D. J. Demis
Clinical Instructors H. G. Bryan, P. L. Repetto

214 *Dermatology and Syphilology* The Staff
Lectures on diseases of the skin and syphilis. (Spring—2 hours a week for eight weeks.)

317-18 *Clinic* Brown
Case demonstrations, diagnosis, and treatment of skin diseases and syphilis. D. C. General Hospital.

407-8 *Clinic* The Staff
Dermatology and syphilology in infants and children. Children's Hospital. (Two hours a week as arranged in rotation during academic year.)

409-10 *Clinic* The Staff
Clinical demonstrations, diseases of the skin. University Hospital. (Two hours a week as arranged in rotation during academic year.)

* This is an interdepartmental course. The student should register in the department directing his research.
† Staff of Instruction for the academic year 1963-64.

MEDICINE*

Professors T. M. Brown (*Chairman*), M. J. Romansky, L. K. Alpert, J. M. Evans, B. Ethridge

Clinical Professors T. W. Mattingly, A. G. Prandoni

Associate Professors A. E. Parrish, C. R. Hartman, S. W. Bush, W. R. Felts, Jr., A. Kelser, Jr.

Associate Clinical Professors Pearl Holly, J. J. Feller, Halla Brown, O. R. Farley, C. Sun, Janet Travell, T. S. Sappington, J. W. Trenis, Alfred Brigulio, Joseph N. Joseph, Beinstein, J. J. Rheingold, Irene Tamagna, J. W. Latimer, Jr., Arnold Rosenbaum, E. A. Gombos, T. J. Abernethy, Benjamin Manchester, F. S. Bass, R. A. Hines

Assistant Professors M. H. Jacobson, Irene Sin, R. C. Fowler, Ariel Hollinshead (*Research*), Mary Watt, N. C. Kramer, Juan Calatayud, H. W. Clark, Jr. (*Research*), Milton Corn

Assistant Clinical Professors L. E. Putnam, Elizabeth Hill, L. J. Thomas, M. H. Stolar, S. J. N. Sugar, H. D. Ecker, C. W. Jones, C. W. Thompson, E. S. Gladstein, Maurice Mensch, F. J. Murray, E. P. Parker III, M. H. Rosenberg, J. W. Dwyer, W. O. Bailey, Jr., Milton Gusack, Jack Kleh, T. A. Conder, Rashid Massumi, Ram Benedict, H. M. Silver, H. E. Ticktin, J. P. Nason, David Horwitz, B. C. Jones, Jr., E. L. Kehoe, W. H. Whitmore, Jr., L. S. Blumenthal, J. P. Mann, Edward Adelman, R. R. Belton, R. B. Castell, S. T. Gibson, Louis Ross, S. W. Kirstein, Israel Kessler, W. D. Brill, Marvin Fuchs, M. H. Rose, C. A. Schulman, Adolph Friedman, S. P. Loube, Alfred Baer, Herbert Abramson, J. H. Pert, Bertie Nelson, W. J. Schwan, C. A. Caceres, R. R. Montgomery

Associates Maurice Protas, R. B. Miller, Jack Orloff, J. B. Marbury, F. D. Chapman, L. H. Snyder, R. G. Taylor, J. W. Long, Irvin Kerlan, Virginia Beclar, J. E. Ambury, R. N. Coale, J. T. Burns, T. L. Hartman, Boris Rabkin, L. A. Craig, Jr., A. W. Danish, Alvin Seltzer, John Walsh, C. E. Law, E. L. Rea, Conrad Gassels, H. O. Mott, J. H. Watson, N. H. Rubenstein, G. J. Fisher, W. L. Stone, B. H. Ostrow, C. D. Cooper, S. C. Pascoe, W. R. Ehrmantraut, G. A. Chapman, F. M. Gross, Eleanor Makel, S. A. Babin, Jr., Alice Brigham, Jack Crowell, D. S. Davis, J. H. Epperson, F. K. Harris II, R. F. Dyer, D. M. Tormey, E. H. Bauersfeld, William Lewis, E. J. Leonard, J. W. Roark, H. I. Passes, C. W. Foulke, A. A. Lear, O. W. Domach, R. S. Poole, H. C. Sudin, S. J. Talpers, W. L. Hall, George Sharpe, C. J. Evered, Helen Ruggles, Raymond Scalettar, Thomas Shwarles

Instructor L. H. Fenton

Clinical Instructors H. C. Bates, Jr., Jeanne Bateman, M. A. Sisten, C. J. Savares, Jr., B. R. Cooperman, M. G. Sherer, J. C. Mandes, R. L. Howard, R. S. Gordon, Jr., G. C. Buchanan, Audrey Connor, Margaret McCabe, C. T. Economos, Irwin Aronson, S. W. Deiter, S. E. Barr, H. A. Moskovitz, J. T. Hagenbucher, G. N. Polis, J. L. Clifford, Daniel Deykin, Catherine Ray, H. G. Rose, Sammie Belcher, Morton Gluck, A. W. McLaurin, R. A. Olsson, Robert Steinmuller, W. F. Morrissey, R. A. Apter, Francis Chucker, H. D. Cohn, F. A. Peck, M. A. Mufson, Gilbert Hurvitz, R. E. Rieselbach, R. S. Wilkinson, W. E. Gallinek, Leslie Wiener, L. H. Biben

* Staff of Instruction for the academic year 1963-64

W. H. Harvey, William Kurstin, S. H. Robinson, D. F. Summers, N. K. Bohrer, R. J. Dobrow, N. G. Goodman, J. D. Herman, Sheldon Kress, R. J. Levine, Frederick Meyers, Lily Ruckstuhl, Charles Shilling, H. O. Schindelar, Paul Schlein, Richard Kaufman, B. H. Ong

Fellows W. K. Bowman, Poo Liang Chang, D. W. Datlow, S. A. Gooch, P. A. Gorman, M. J. Halberstam, T. H. Lee, Marshall Miller, D. O. Nutter, J. C. Rios, Richard Schoenfeld

Assistants J. O. Allin, Lucy Antoniou, James Barrett, G. W. Bedeau, J. E. Benzel, F. J. Borsody, C. H. Chan, Juan Durand, Olga Eaton, Isa Fawal, L. H. Fenton, M. J. Garcia, D. W. Grande, H. M. Gulak, John Kilfeather, Paul Kovnat, Samuel Labow, Nelson Perez-Trujillo, Fidel Quintana, Marvin Schneider, H. D. Shifrin, Kurt Sorensen, Edward Walters, J. L. Winnacker, Karl Wipplinger

Special Lecturers A. D. Kistin, Sol Katz, R. W. Berliner, T. H. McGavack, P. D. Comanduras, W. L. Nalls, Roy Hertz, Albert Sjoerdsma, W. H. Crosby, D. S. Fredrickson, Pierre Tulou, J. E. Rall, Ernest Cotlove, T. J. Kennedy, Jr.

236 Clinical Microscopy The Staff
Conferences and studies in the clinical application of laboratory examinations of blood, body fluids, exudates, excreta. (Spring—3 hours a week.)

242 Physical Diagnosis The Staff
Covers not only theoretical but practical application of principles of physical diagnosis as related to examination of patients. (Spring—6 hours a week.)

244 Introduction to Medicine The Staff
Lectures and conferences covering the principles of internal medicine. (Spring—1 hour a week.)

326 Introduction to Medical Management The Staff
Training with bed patients under individual instruction designed to develop ability in examination of patients and case taking as well as practice in clinical microscopy. D. C. General Hospital.

327 Clinical Pathological Conferences I The Staff
Conferences are held at the School of Medicine. Case histories are presented and discussed by the students and members of the Staff. Clinical, laboratory, and necropsy findings are compared. (Fall—1 hour a week.)

349 Medical Conferences The Staff
D. C. General Hospital. (Fall—6 hours a week.)

421-22 Clinics The Staff
Individual case studies under personal supervision of the Staff. Daily clinics on current medical problems and seminars stressing physiological aspects of diseases. Individual examinations and instructions in medical specialties. University Hospital. (Six weeks as arranged during academic year.)

423-24 Inpatient Clerkship in Medicine The Staff
University, Mt. Alto, and D. C. General hospitals. (Six weeks as arranged during academic year.)

429-30 Clinical Pathological Conferences II The Staff
Conferences are held at the University Hospital. Attendance is required of students during their medical clerkships there. (Academic year—1 hour a week.)

MICROBIOLOGY*

Professors A. M. Griffin, Mary Robbins, R. C. Parlett (*Chairman*)
Associate Professor Rudolph Hugh
Assistant Professors R. C. Wood, Elizabeth O'Hern, Lewis Affronti
Associates W. D. Hann, Meir Kende
Fellows R. A. Cornesky, Julian Hopfman

Special Lecturers L. S. Baron, F. B. Gordon, Leon Jacobs, M. C. Leikind, T. G. Ward

112 General Microbiology (4)

For nonmedical students. A study of the fundamentals of bacteriology, including its general applications. Methods of cultivation and control of several groups of microorganisms are studied in the laboratory. Prerequisite: any biological laboratory science; Chemistry 11-12. Laboratory fee, \$16. (Spring—MWF 9:10-12 am.) Parlett and Staff

209 Medical Microbiology†

For medical students. Bacteria, rickettsiae, viruses, yeasts, molds, protozoa, and metazoa which relate to the health and disease of man—cultural study of most important forms, methods of diagnosis by microscopic, cultural, immunologic, and animal actions; theory and methods of immunology; vaccines; serums; antibiotics. (Fall: lecture (4 hours), laboratory (10 hours)—as arranged.) Parlett and Staff

211 Medical Bacteriology and Virology† (7)

A study of the fundamentals of bacteriology and virology with methods of laboratory study. Open to graduate students. Prerequisite: any biological laboratory science. Chemistry 151-52; permission of the instructor. Laboratory fee, \$16. (Fall—as arranged.) Parlett, Robbins

213 Parasitology† (3)

A study of the fundamentals of parasitology with methods of laboratory study. Open to graduate students. Prerequisite: any biological laboratory science; Chemistry 151-52; permission of the instructor. Laboratory fee, \$5. (Fall—as arranged.) O'Hern

215 Immunology† (1)

A study of the fundamentals of immunology with methods of laboratory study. Open to graduate students. Prerequisite: any biological laboratory science; Chemistry 151-52; permission of the instructor. Laboratory fee, \$16. (Fall—as arranged.) Parlett

217 Advanced Mycology (3)

Advanced study of the fungi—emphasizing culturing and determinative techniques. Lectures and laboratory exercises. Prerequisite: Microbiology 112 or 209, and permission of the instructor. Laboratory fee, \$16. (1965-66 and alternate years: fall—as arranged.) O'Hern

219-20 Advanced Microbiology (arr.)

Special study of advanced methods and current problems in microbiology for suitably qualified students specializing in microbiology. Prerequisite: Microbiology 112 or 211, 213, and 215; Chemistry 151-52 or the equivalent; permission of the instructor. Laboratory fee, \$16 a semester. (Academic year—as arranged.) Hugh and Staff

225 Microbial Chemistry and Physiology (3)

A lecture course. The biochemical features peculiar to various microorganisms—especially bacteria—are described and are compared with those of the animal cell. Includes discussion of the use of microorganisms in the elucidation of problems in biochemistry. Wood

* Staff of Instruction for the academic year 1963-64

† The combination of Microbiology 211, 213, and 215, is equivalent to Microbiology 209 which is limited to medical students.

chemistry. Prerequisite: Biochemistry 221-22 or the equivalent. A course in general microbiology is recommended. (1965-66 and alternate years: fall—as arranged.)

227 *Microbial Pharmacology* (2)

Wood

A lecture course describing the interactions of drugs and microorganisms—action of drugs on microbes, resistance of microbes to drugs, metabolism of drugs by microbes. Includes discussion of the selective action of drugs toward microbial and animal cells. Prerequisite: Microbiology 225 or permission of the instructor. (1964-65 and alternate years: spring—as arranged.)

229 *Statistics and Microbiology* (3)

Griffin

The application of statistical methods to the problems of microbiology. For graduate students. Prerequisite: elementary college algebra. (Spring—as arranged.)

232 *Immunological Methods* (3)

Parlett, Affronti

Preparation and testing of serological materials. Demonstration of basic serological phenomena. For graduate students. Prerequisite: Microbiology 112 or 211, 213, and 215 and permission of the instructor. Laboratory fee, \$16. (1964-65 and alternate years: spring—as arranged.)

234 *Virology* (6)

Robbins

Study of viruses and rickettsiae. Lectures and laboratory exercises. For graduate students. Prerequisite: Microbiology 112 or 211, 213, and 215 and permission of the instructor. Laboratory fee, \$16. (1965-66 and alternate years: spring—as arranged.)

249-50 *Introduction to Medical Research** (3-3)

The Staff

Primarily for graduate students. A comprehensive introduction to the major medical research techniques—anatomical, statistical, physical, chemical, electrical, and radiological—as applied to biological materials in the medical sciences. Laboratory fee, \$7.50 a semester. (Academic year—W 1-6 pm.)

292-94 *Staff Seminar* (1-1)

The Staff

For graduate students. Bi-weekly throughout the year. (Academic year—as arranged.)

295-96 *Research in Microbiology* (arr.)

The Staff

(Academic year—as arranged.)

299-300 *Thesis* (3-3)

The Staff

NEUROLOGY AND NEUROLOGICAL SURGERY†

Professors J. W. Watts (*Chairman*), Harold Stevens, R. S. Paine

Clinical Professor J. M. Williams

Associate Clinical Professors R. H. Groh, J. F. Fazekas, H. V. Rizzoli

Assistant Clinical Professors J. P. Murphy, A. S. Dekaban, Harvey Ammerman, G. J. Hayes, C. M. Swain

Associates G. D. Weickhardt, C. A. Marsan, A. J. Levens, Ninos Myrianthopoulos

Clinical Instructors M. C. Korengold, J. T. Lord, N. H. Horwitz, Z. W. Sanders, R. H. Robertson, R. A. Mendelsohn, Ruth Jakoby, Virginia Duggins, L. C. McHenry, Jr., A. P. Hustead, Kristoff Abraham, R. A. Chase, V. S. Vaid

Fellow H. Z. Gokald

Special Lecturer K. M. Earle

* An interdepartmental course. The student should register in the department directing his research.
† Staff of instruction for the academic year 1963-64.

250 Neurology: Basic

Methods of studying the form and function of the nervous system are presented in lectures and laboratory demonstrations. The transition between the basic sciences and clinical neurology is stressed and correlated. (Spring—1 hour a week.)

Stevens and Staff

331 Neurology and Neurological Surgery

Clinical lectures and demonstrations. (Fall—2 hours a week.)

Watts, Stevens

335-36 Neurosurgical Conferences

Clinical conferences weekly. D. C. General Hospital.

Watts and Staff

431-32 Neurology and Neurological Surgery Clinic

Neurological outpatient clinic. Consultation of staff on ambulatory cases, demonstration of diagnostic procedures.

The Staff

OBSTETRICS AND GYNECOLOGY*

Professors John Parks, R. H. Barter (Chairman)

Clinical Professor S. M. Dodek

Associate Professors J. G. Sites, W. P. McKelway

Associate Clinical Professors J. A. Dushabek, C. K. Fraser, J. K. Cromer, Dwight Callagan, Edward Zimmerman

Assistant Clinical Professors Caroline Jackson, T. M. Leonard, W. T. Lady, T. A. Wilson, J. R. Epstein, S. H. Shica, G. L. Jarvis

Associates B. W. Richwine, F. S. Rogers, R. M. Roll, J. W. Pearson, Jr., Shirley Martin, N. J. Price, M. S. Kaufman, M. P. Footer, J. C. Walsh, Donald Walters,

J. M. Friedman, L. M. Liverett, Peter Sovster, H. P. Treichler

Clinical Instructors A. S. Bright, W. H. Cooper, I. W. Rovner, M. W. Sandmeier, Jr., N. M. Tart, Elizabeth Crisp, L. W. Davis, R. E. Bieren, A. W. Winshel, Ben-

Waxman, L. D. Amorosi, S. M. Belinsky, R. V. Erkenbeck, J. R. Marshall, E. E. Gahrea, John Lukasik

Assistants D. R. Carlson, S. D. Cooley, E. E. Cunningham, J. R. Day, Jr., E. T. Gibson, T. H. Grosinger, F. E. Kachinski, Jr., E. R. Kolvereid, J. L. Marlow, Geraldine Paul, L. Q. Pugsley

254 Introduction to Obstetrics and Gynecology

Lectures and demonstrations on the development and physiology of the female reproductive system and management of normal pregnancy. (Spring—1 hour a week.)

Dodek, Fraser

301-2 Manikin Demonstrations

The mechanism of labor and various types of operative delivery demonstrated to students of the junior class. D. C. General Hospital. (One hour a week for six weeks in rotation as arranged during academic year.)

Waxman

337-38 Obstetrics and Gynecology

Lectures and demonstrations on the principles of obstetrics and gynecology. (Academic year—4 hours a week.)

Parks, Barter, Sites, McKelway

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441-42 Clinical Obstetrics

Students participate in prenatal and postnatal clinic care, observe the course of labor and deliver patients under supervision, attend daily departmental conferences and ward

The Staff

* Staff of Instruction for the academic year 1963-64.

rounds in the University and D. C. General hospitals. (Academic year—as arranged.)

41-44 *Clinical Obstetrics and Gynecology* The Staff
Continuation of Obstetrics and Gynecology 441-42. (Academic year—as arranged.)

OPHTHALMOLOGY*

Clinical Professor E. A. W. Sheppard
Associate Clinical Professor R. W. Wilkinson
Assistant Professor J. W. McTigue (*Chairman*)
Assistant Clinical Professors W. J. Romejko, W. P. Chalfant, Jr., W. J. G. Davis, R. E. duPrex, Robert Day, M. G. Alper
Associates J. H. Lodge, W. B. Glew
Clinical Instructors J. R. Weimer, Stephen Pappas

352 *Ophthalmology* The Staff
Lecture course presenting aspects of all the principles of ophthalmology. (Fall—
one hour a week for sixteen weeks—as arranged.)

447-48 *Clinic* The Staff
Each student is given individual instruction in ophthalmological diagnosis. (Academic year—as arranged.)

OTOLARYNGOLOGY*

Associate Clinical Professor J. J. McFarland, Jr. (*Chairman*)
Assistant Clinical Professors Catharine Birch, J. L. Levine, M. E. Krucoff, R. S. Page, Jr., J. A. Sabri, W. M. Tribble
Clinical Instructor B. M. Webb

351 *Otolaryngology* The Staff
Lectures and demonstrations on anatomy, physiology, and diseases of the ear, nose, and throat. (Spring—1 hour a week for fourteen weeks.)

354 *Bronchoscopy* The Staff
A series of lectures on the fundamental principles and the use of instruments, including both the bronchoscope and esophagoscope. (Spring—1 hour a week for two weeks.)

* Staff of Instruction for the academic year 1963-64

355-56 Clinic

Practical and clinical instruction in the diagnosis and treatment of diseases of the ear, nose, and throat. University Hospital. (1½ hours a week in rotation as arranged during academic year.)

The Staff

PATHOLOGY*

Professors T. M. Peery (Chairman), W. R. Duryee (Research), F. N. Miller, Jr.
Clinical Professor E. B. Smith

Associate Professors William Newman, W. L. Marsh

Assistant Professors Lois Platt (Cytology), Alexander Breslow, F. S. Jannotta

Assistant Clinical Professor L. F. Misanik

Assistants Gloria Brennan, M. G. Holmgren, Roberta Nieberg, Ronald Ottenberg,
Erlo Roth, Paul Snow

SPECIAL STAFF FOR DEMONSTRATIONS

Associate Clinical Professors J. S. Howe, R. G. Gottschalk, Louis Hansen, V. E.
Martons, Theodore Winship

Assistant Clinical Professors R. E. Palmer, W. F. Enos, Cornelia Hoch-Ligeti, L. W.
Fix, Grace Guin, Elmar Zentler

Associates L. E. Zimmerman, C. B. Cook

Clinical Instructors D. R. Parkinson, I. D. Godwin, R. L. Davis, P. W. Lampert

Special Lecturers E. B. Helwig, L. C. Johnson

115-16 Introduction to Medical Science (1-1)

For students in medical technology at the University Hospital. These lectures, based upon physiology, pathology, and medicine, provide a background for the interpretation of laboratory data. (Academic year—1 hour a week.)

Marsh and Staff

117-18 Principles in Medical Technology (4-4)

For students in medical technology at the University Hospital. Theories, principles, and sources of error, of the methods used in clinical chemistry, clinical bacteriology, serology, hematology, and clinical microscopy. (Academic year—4 hours a week.)

Marsh and Staff

219-20 Medical Technology Laboratory (10-10)

Practice and experience by rotation through the various divisions of the Pathology Laboratories of the University Hospital, as follows: hematology and urinalysis, 12 weeks; chemistry, 12 weeks; bacteriology and parasitology, 10 weeks; blood banks, 8 weeks; serology, 4 weeks; tissue pathology, 4 weeks. (30 hours a week for 50 weeks.)

Marsh and Staff

259-60 Pathology

General pathology of inflammations, degenerations, malformations, and neoplasms. Special pathology of the organs and specific diseases. The laboratory work consists of

Peery, Miller, Breslow, Jannotta

* Staff of Instruction for the academic year 1963-64

gross and microscopic study of diseased tissue. Special emphasis is placed on the functional effects of the various pathologic changes and their correlation with symptoms and physical signs. (Fall—9 hours a week; spring—3 hours a week.)

61-62 Necropsy

The Staff

Students are required to attend and assist in the performance of necropsies at the University Hospital. (Academic year—as arranged.)

63-64 Demonstrations in Pathology

Special Staff

Gross specimens from several hospitals are demonstrated and discussed. The University Hospital laboratories for clinical pathology are visited and their functions are demonstrated. (Academic year—1 hour a week.)

65-68 Seminars in Pathology

The Staff

Advanced lectures are presented as arranged on special topics in pathology. (Academic year—as arranged.)

70 Forensic Pathology and Medical Jurisprudence

Miller

Forensic pathology, toxicology, chemistry, and immunology. The legal and ethical rights and responsibilities of physicians. Legal problems in medicine. (Spring—1 hour a week.)

201 Problems in Experimental Cellular Pathology (I)

Duryee

For nonmedical graduate students. Also for a limited number of specially qualified medical students on an elective basis. Cytological and biophysical aspects of cellular function in relation to normal and selected pathological conditions. (Fall—1 hour a week as arranged.)

225-24 Surgical Pathology

Misanik

Weekly conferences are held with the student group assigned to the surgical clerkship, reviewing current surgical specimens. (Academic year—1 hour a week.)

227 Clinical Pathological Conferences I

The Staff

Case histories are presented and discussed by the students and members of the Staff. Clinical, laboratory, and necropsy findings are correlated. (Fall—1 hour a week.)

229-30 Clinical Pathological Conferences II

The Staff

Conferences are held at the University Hospital. Attendance is required of students during the medical clerkship there. (Academic year—1 hour a week.)

293-94 Pathology Clerkship (elective)

The Staff

A limited number of students receive individual training in surgical pathology and necropsies in the laboratories of the University Hospital. (Academic year—as arranged.)

PEDIATRICS*

Clinical Professors Margaret Nicholson, W. S. Anderson, R. H. Parrott, L. E. Hoeck, W. A. Howard (Chairman), J. A. Washington, R. S. Lougrie

Associate Clinical Professors T. E. Reichelderfer, Margaret Gutelius

Assistant Professors S. L. Leikin, Wellington Hung, Antonis Simopoulos, E. V. Soto,

Michael Tate

Assistant Clinical Professors Mabel Grosvenor, Aaron Naimetz, George Maksim, A. B. Coleman, R. E. Martin, William Stark, J. R. Puig

Associates J. H. Perrock, Jr., Mary Sartwell, C. F. Stogler, H. G. Clark, Adrian

Reinos, Jr., C. R. Webb, A. R. MacPherson, G. J. Cohen, Bennett Olsaker

* Staff of Instruction for the academic year 1963-64

Instructor Leon Cytryn

Clinical Instructors H. H. Diamond, R. H. Mitchell, R. O. Warthen, Emilie Black, R. H. Anderson, W. G. Preisser, H. T. Yates, Roger Bergstrom, Mary Fox, S. Z. Goldblatt, Hilary Millar, Harold Plotsky, A. J. Modlin, Jean Lockhart, G. W. Daley, Jr., Gloria Eng, Belinda Straight, Jean Yacoubian, T. H. Anders, Stephen Mourat, Morris Feitel, A. M. Rivera, Agnes Schweitzer

256 *Pediatrics*

Lectures on physiology of the newborn, normal behavior, emotional and physical development, infant nutrition, diseases of the newborn, common anomalies and system diseases of infancy and childhood. Medical School. (Spring—2 hours a week.) Howard and Staff

355 *Pediatrics*

Introduction to clinical pediatrics. Lectures, demonstrations, and case presentations designed to familiarize the student with history taking and physical diagnosis in various pathologic states, and stressing pathophysiology and management. (Fall—2 hours a week.) Reichelderfer and Staff

365 *Pediatric Psychiatry*

Lectures on neuroses of children and adolescents (in cooperation with the Department of Psychiatry). (Fall—as arranged.) Lourie and Staff

457-58 *Clinical Clerkship*

Full time, including assignment to night and holiday admissions. Case studies on wards under direct Resident supervision. Ward rounds with Staff and Residents. Twelve students. Children's Hospital. (Nine weeks as arranged during academic year.) Howard and Staff

459-60 *Outpatient Clinics*

Work in Medical and Specialty clinics including surgery, allergy, X-ray, child welfare, cardiology, dermatology, neurology, and child guidance. Children's Hospital. (Academic year—as arranged.) Howard and Staff

461-62 *Clinical Pathological Conferences*

Clinical and pathological discussion of recent patient history and laboratory data. Medical School. (Academic year—1 hour a week.) Howard and Staff

463-64 *Teaching Rounds*

Discussion of clinical problems of diagnosis and treatment of current patients. Children's Hospital. (Academic year—three times a week.) Gutelius and Staff

467-68 *Clinical Conferences*

Required. Staff and student discussion of current problems in pediatrics with review of recent literature. Children's Hospital. (Academic year—3 hours a week.) Howard and Staff

469-70 *Clinical Pediatric Psychiatry*

Clerkship in fourth year including Well Baby Clinic. Group and class conferences. (Academic year—as arranged.) Lourie and Staff

471-72 *Pediatric Electives*

(Academic year—as arranged.) Howard and Staff

PHARMACOLOGY *

Professor H. G. Mandel† (Chairman)

Clinical Professor R. G. Smith

Professorial Lecturer B. B. Brodie

Associate Professor Clarke Davison

Assistant Professors V. H. Cohn, Jr., T. M. Farber, Paul Mazel, Melvin Reich (Research), Elizabeth Tidball (Research), W. P. Weiss (Research)

249-50 Introduction to Medical Research† (3-3)

Reich and Staff

Primarily for graduate students. A comprehensive introduction to the major medical research techniques—*anatomical, statistical, physical, chemical, electrical, and radiological*—as applied to biological materials in the medical sciences. Laboratory fee, \$7.50 a semester. (Academic year—W 1-5 pm.)

261 Pharmacology (7)

Mandel and Staff

Lectures, laboratories, and conferences concerning the interaction of drugs and biological systems as a basis for the rational therapy of disease. Open to qualified nonmedical students. (Fall—9 hours a week.)

267-68 Pharmacological Research (arr.)

The Staff

Primarily for those properly qualified graduate and medical students seeking careers in pharmacology. (Academic year—as arranged.)

269-70 Pharmacology Seminar (1-1)

The Staff

Recent advances in pharmacology. For those interested in pharmacological research. Open to qualified nonmedical students. (Academic year—2 hours a week.)

272 Physiological Disposition of Drugs (3)

Cohn, Davison

A lecture and seminar course dealing with the fate of drugs in biological tissue. Discussion of absorption, distribution, chemical alteration, and excretion of drugs, and the physical, chemical, and biological factors affecting these processes. Prerequisite: Pharmacology 261. (1965-66 and alternate years: spring—as arranged.)

279-80 Special Topics in Pharmacology (arr.)

Farber, Mazel, and Staff

A lecture course dealing with select aspects of drug action. Prerequisite: Pharmacology 261. (Academic year—as arranged.)

281 Physiological Techniques in Pharmacology (3)

Farber, Mazel

A series of specially selected experiments with supplementary lectures designed to illustrate physiological techniques useful in obtaining information as to mechanism and site of action of pharmacological agents. Prerequisite or concurrent registration: Pharmacology 261. (1965-66 and alternate years: fall—as arranged.)

283 Biochemical Techniques in Pharmacology (3)

Cohn, Reich

A lecture and laboratory course designed to equip the student with the theory and practice of modern biochemical techniques applicable to the study of the metabolic fate and mechanism of action of drugs. Prerequisite or concurrent registration: Pharmacology 261. (1964-65 and alternate years: fall—as arranged.)

299-300 Thesis (3-3)

The Staff

Required of Master of Arts and Master of Science candidates. (Academic year—as arranged.)

* Staff of Instruction for the academic year 1965-66.
† On-sabbatical leave spring semester 1963-64.
‡ This is an interdepartmental course. The student should register in the department directing his research.

PHYSICAL MEDICINE AND REHABILITATION

Professor C. S. Wise (Chairman)

Associate Professor John Watt, Jr.

Assistant Clinical Professors P. A. Klieger, Giuseppe Balsamo, Inez Hill

Associates A. B. C. Knudson, F. L. Wenger

Fellow C. J. Duke

Assistants L. P. Hartman, Kyoko Ikari, Catherine Ryan

150 *Elements of Physical Medicine*

In arrangement with the Anatomy Department, lectures and demonstrations of the various tests and measurements are employed in the evaluation of physical disability. (Spring—as arranged.) The Staff

352 *Advanced Physical Medicine*

Lectures and demonstrations concerning the various techniques, clinical applications of physical medicine and rehabilitation to be integrated with the teaching of the associated medical and surgical specialties. (Spring—1 hour a week.) The Staff

467-68 *Clinical Studies (elective)*

Clinical teaching and demonstration at the University Hospital. (Academic year—as arranged.) The Staff

485 *Research (arr.)*

Open to medical students and qualified nonmedical students. (Fall—as arranged.) The Staff

PHYSIOLOGY*

Professor C. E. Leese

Associate Professors C. S. Tidball (*Acting Chairman*), Hortense Louckes (*Research*)

Assistant Professors Barbara Alving, Marie Cassidy (*Visiting*)

Lecturers J. F. Hoffman, D. P. Rall, R. J. Podolsky, Quentin Hartwig

Associates P. G. Nelson, W. A. Hagins, J. B. Block, C. M. Armstrong, M. B. Berc

Eric Feigl, Michael Field, Joseph Gilmore, E. S. Henderson, Eugene Jacobson

Lawrence Rabinowitz, G. T. Ross, R. D. Utiger, Edward Miner

Fellows Natalie Gavian, Elizabeth Stephenson

Special Lecturers S. J. Sarnoff, J. H. U. Brown

115 *Introduction to Human Physiology (3)*

Lectures on the fundamentals of physiology in its various subdivisions. Prerequisite: one year of general science or one semester of biological science. (1964-65 and alternate years: fall—1Th 8-10 am.; 1965-66 and alternate years: fall—5:10-6:25 pm.) Leese

130 *Psycho-Physiology (2)*

Lectures on the patterns and expression of personality, with emphasis on the physiological approach. Prerequisite: Physiology 115 or the equivalent and general psychology. (Spring—1Th 5-10 pm.) Leese

* Staff of Instruction for the academic year 1963-64

- 137 Vertebrate Physiology (4)**
 Fundamental principles of physiology as exemplified in the vertebrates. Prerequisite: Chemistry 11-12; Mathematics 3; and Physics 11, 12; or the equivalent. Laboratory fee, \$18. (Fall—lecture, TTh 5:10-6:25 pm.; laboratory, F 1:10-5 pm.)
 Leese, Tidball and Staff
- 150 Medical Physiology**
 Lecture and laboratory work in all divisions of physiology. This course is designed for medical students. (Spring—lecture 7 hours a week, laboratory 9 hours a week.)
 The Staff
- 211-12 Problems in Physiology (arr.)**
 Directed study under the supervision of a staff member. Prerequisite: Physiology 137, 150, or 232, and the consent of the instructor. (Academic year—as arranged.)
 The Staff
- 221-22 Physiology Seminar (1-1)**
 Prerequisite: Physiology 137, 150, or 232, and a reading knowledge of French or German. (Academic year—as arranged.)
 Louckes
- 232 Advanced Mammalian Physiology (10)**
 Lecture 7 hours a week, laboratory 9 hours a week. Prerequisite: Chemistry 11-12; Mathematics 3; Physics 11, 12; or the equivalent. It is recommended that Biochemistry 221-22 be taken as a prerequisite or concurrently. (Spring—MTWTF 1-5 pm.)
 The Staff
- 279 Comparative Physiology (2)**
 Lectures and seminars on topics of current interest in comparative physiology, with emphasis on nonmammalian forms. Prerequisite: Physiology 137, 150, or 232, or Zoology 162; and the consent of the instructor. (1964-65 and every third year: fall—as arranged.)
 The Staff
- 285 Physiology of Cell Membranes (2)**
 Lectures and seminars on ionic and molecular transport through biological membranes. Prerequisite: Chemistry 111-12 or Physics 181; and Physiology 150, or 232, or Botany 135-36; and the consent of the instructor. (1965-66 and every third year: fall—as arranged.)
 The Staff
- 281 Biophysics (2)**
 Lectures and seminars on biological topics which require development along physical lines. Prerequisite: Chemistry 111-12 or Physics 181 and the consent of the instructor. (1966-67 and every third year: fall—as arranged.)
 The Staff
- 295-96 Research (arr.)**
 Prerequisite: Physiology 137, 150, or 232, or the equivalent. (Academic year—as arranged.)
 The Staff
- 299-300 Thesis (3-3)**
 The Staff

PREVENTIVE MEDICINE AND COMMUNITY HEALTH*

Professors J. F. Sadusk, Jr. (Chairman), R. G. Beachley (Emeritus)
 Professor Murray Grant
 Professorial Lecturer D. L. Finnane
 Associate Clinical Professors David Frost, G. O. Pierce, W. I. Zukel
 Assistant Clinical Professors L. A. Pyle, Jr., J. H. Vinyard, Jr.
 Instructor F. J. Kessler

Special Lecturer W. J. Peeples

* Staff of instruction for the academic year 1963-64.

210 *Preventive Medicine and Community Health* (2)

Sadusk and Staff

A lecture-seminar covering fundamental aspects of preventive medicine, occupational medicine, public health, community health, and the place of the physician in his community. Current socio-economic medical problems will be discussed in preparation for later clinical years. Open to pharmacy and graduate students. Prerequisite: Microbiology 112 or the equivalent. (Spring—M 2:00-4:00 pm.)

301 *Continuing Care Program*

Sadusk and Staff

Medical care program carried out with the assistance of clinical faculty members in Medicine, Obstetrics, and Surgery. Students enter the program in their junior year and are responsible, under specific preceptors, for the diagnosis and care of selected medical, obstetrical, and surgical patients in the outpatient clinic and hospital units on a long-term basis until graduation. University, Fairfax, and Washington Hospital Center hospitals. Health maintenance, development of the family doctor-patient relationship stressed; introduction to the use of community health facilities. (Fall—T or Th 8:10-12:00 am.)

302 *Continuing Care Program*Sadusk and Staff
Spring—T or F

Continuation of Preventive Medicine and Community Health 301.
as arranged and required for the care of patients.)

401 *Continuing Care Program*Sadusk and Staff
(Fall—T or F)

Continuation of Preventive Medicine and Community Health 302.
as arranged and required for the care of patients.)

PSYCHIATRY*

Professors Leon Yochelson (*Chairman*), Samuel Yochelson (*Research*)
Clinical Professors J. D. Schultz, D. C. Cameron, F. A. Freyhan, D. M. Bullard

Douglas Noble

Associate Professor J. E. Rankin*Associate Clinical Professors* H. P. Laughlin, M. deG. Ruffin, Sidney Berman, Morris

Kleinerman, Anna Todd, Norman Taub, Leon Ferber, P. H. Gray, Paul Chodoff

I. H. Kaiser

Assistant Professors Helen Pallister, Helen Pearey, J. G. Rubin, E. S. Fleming*Assistant Clinical Professors* Sarah Tenenblatt, Richard Schaengold, David Eden, C.

T. Bever, Joseph Abrahams, R. M. Greenberg, M. L. Adland, W. D. Kehne, H. A.

Meyersburg, S. L. Werkman, J. B. Chassin, R. W. Gans, R. A. Rogers, J. A. Far-

rell, S. C. Gordon, H. B. Lehman, A. M. Drummond, N. C. Rintz, J. L. Sheridan.

Lecturer W. E. Barton*Associates* W. C. Johnson, R. A. Frank, Leslie Schaffer, D. W. Harris, A. H. Kiracoff,

Jr., T. M. Mackenzie, B. W. Murphy, Daniel Prager, R. N. Butler, E. I. Kushner,

Jean Menetrez, B. H. Sklarew, Christine Kehue, D. B. Price, M. A. Woodbury, W.

H. Young, Jr.

Clinical Instructors Maxwell Boverman, J. H. Bouma, Bertram Brown, B. L. Barre-

Seymour Rabinowitz, D. S. Sprague

Assistants Margret Berendes, A. A. Cano, Pearl Shen, W. G. Tompkins, Hugh Van

Sickel

Special Lecturers R. H. Felix, Mathew Ross

* Staff of Instruction for the academic year 1963-64.

- 165 **Introductory Medical Psychology** Berman
An orientation course in the anatomical, physiological, and psychological growth and development of personality. Consideration of characteristics of structure, function, and development of the psyche leading to normal behavior as a basis for the study of the pathological. Evaluation of interpersonal relationships. (Spring—1 hour a week.)
- 166 **Psychopathology** Rankin
Manifestations and understanding of various mental mechanisms and abnormal reaction types, preceded by history of development of psychopathology and illustrated with case material. (Spring—1 hour a week.)
- 167 **Psychiatry** Yochelson
Psychiatry in the practice of Medicine. Techniques of interviewing. (Spring—1 hour a week.)
- 168 **Clinical Psychiatry** Freyhan, Chodoff, and Staff
History, etiology, symptoms, course, and treatment of the major psychoses with emphasis on the dynamics involving the person as a whole. Presentation of clinical cases of major mental illnesses and primary behavior disturbances. St. Elizabeths and D. C. General Hospitals. (Spring—3 hours a week.)
- 169 **Psychosomatic Aspects of General Medicine** Ruffin
Somatic disorders of psychogenic origin. The role of personality reactions in functional and organic disorders. (Spring—1 hour a week.)
- 170 **Psychoneurosis** Ferber
History, psychopathology, clinical aspects, and treatment of various types of psychoneuroses. Medical Conference Room, D. C. General Hospital. (Spring—1 hour a week.)
- 171 **Clinical Clerkship** The Staff
Supervised examination, diagnosis, and treatment of ambulatory cases in University Hospital and hospitalized cases in St. Elizabeths Hospital. Conferences for discussion of cases. Clinical application of psychiatric principles to general medical practice. St. Elizabeths University Hospital Inpatient and Outpatient Psychiatric Clinics and St. Elizabeths Hospital. (Three weeks divided service as arranged during academic year.)

RADIOLOGY *

- Professor W. W. Stanbro (Chairman)
Associate Clinical Professor H. J. Kieherer, Joseph LoPresti
Assistant Professors C. F. Murphy, W. J. Nelson
Assistant Clinical Professors Charlotte Donlan, S. R. Bersack, H. L. Berman, J. T. Brennan, Albert Bauer, Henry Harrell, A. C. Wyman, D. B. Soder
Assistant S. W. Smith, M. D. Faris
Clinical Instructors George Tivsky, U. V. Wilcox II, C. M. Weber, Nan Van Wageningen, Zeki Erim, M. A. Thomas
Instructors J. W. Clancy, Olav Ciglay, H. M. Hagen, R. B. Merlo, G. A. Soback, L. W. Stanton, L. N. Sweet
- 17-16 **Anatomy** The Staff
Instruction of gross and Roentgen anatomy. (Academic year—as arranged.)
*Staff of instruction for the academic year 1963-64

220 *Principles of Radiology*

Lectures and discussions. (Spring—1 hour a week.)

The Staff

313 *Advanced Radiological Diagnosis*

Lectures and discussions. (Fall—as arranged.)

The Staff

421-22 *Clinical Studies*

Students are assigned to the X-ray Department in rotation on a full-time basis for a specific period.

The Staff

SURGERY *

Professors Brian Blades (Chairman), C. T. Klopp

Clinical Professors W. S. McCune, V. M. Levine, Alice Horwitz, G. A. Higgins, Jr.

J. P. Adams, G. S. Letterman

Associate Professors P. C. Adkins, H. C. Pierpont

Associate Clinical Professors H. L. Feller, J. R. Thistlethwaite, Don Wenger, J. S. Norment, L. T. Peterson, Thomas Whelan

Assistant Professors N. P. D. Smyth, T. C. Alford, Allan Hall, Peter Kenmore

Assistant Clinical Professors J. B. Harrell, Thomas Bradley, Mandook Houd, R. Kindred, Ernest Bray, Maxine Schurter, E. A. Gould, L. B. Burk, Jr., William H. Jensen, D. C. Wherry

Associates J. J. Weinstein, K. H. Wood, Isabella Harrison, Charles Keck

Instructors P. E. Shuck, Jr., N. T. Thompson, A. E. Hunt, E. W. Waifors

Clinical Instructors C. D. Briggs, J. F. Conlon, D. C. Richmond, Louis Gabel, A. J. Robinson, Jr., B. G. Brown, J. D. Hoyle, N. H. Johnson, C. S. White, Jr., D. J. McCarty, J. M. Koshikian, R. L. Day, L. B. Perry, I. M. Wright, J. H. Smith

Francis Brunsack, J. P. Eakery, J. W. Carter, H. E. Lewis, Jr., Robert L. Gorman, J. E. Peterson, Charles Radwin, J. R. McCollum

Fallon K. O. Cho

Residents H. B. Applebaum, C. P. H. Carrell, F. G. Dublin, Allan Paster, N. F. Fox, J. L. Fox, U. B. Goff III, Floyd Lamp, S. F. Marolla, P. C. Nordhagen, Jr., R. J. Roll, Jr., S. J. Silberman, C. A. Silva, Jerome Solovick, Benjamin Teichman, I. Thompson, R. V. Thompson, G. A. Whipple, E. W. Waifors III

The Staff

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The Staff

* List of instruction for the academic year 1963-64

- 377 *Fractures and Orthopedics*
Lectures covering the field of fractures and orthopedics. D. C. General Hospital.
(Fall—1 hour a week.) The Staff
- 379-380 *Lectures by Surgeons*
D. C. General Hospital. (Academic year—2 hours a week.) The Staff
- 381-384 *Surgical Clinic*
Demonstration of various surgical diseases to the entire class. University Hospital.
(Academic year—1 hour a week.) Blades
- 471-54 *Clinical Clerkship II*
Six weeks, University Hospital; three weeks, Mt. Alb. Hospital. (Academic year—) The Staff
- 479-381 *Surgical Staff Conferences*
University Hospital. (Academic year—W as arranged.) The Staff
- 382-384 *Surgical Ward Rounds*
Demonstration of various surgical diseases to fourth-year clerks. University Hospital.
(Academic year—1 hour a week.) Blades
- 491 *Surgical Anatomy II*
Lectures for fourth-year clerks. University Hospital. (Fall—1 hour a week for twelve weeks in rotation.) Horvitz and Staff
- 492 *Surgical Pathology II*
A systematic study of the gross and microscopic changes in the organs and tissues recently removed surgically. (Spring—1 hour a week.) Newman

UROLOGY*

- Clinical Professors* L. R. Callerton (Chairman), E. F. Ferguson
Associate Clinical Professors W. D. Jacman, F. T. Roster
Assistant Clinical Professor Gilbert Ottensberg
Assistants G. R. MacDonald, H. A. Goldberg
Clinical Instructors H. D. Wolff, Jr., H. P. Dorman, W. D. Quinn, John Kennedy, F. P. Charamonte, Gyorgy Dyalasgyerki, H. J. Klaparsky, R. C. Rhoads, R. L. Ware
Associate W. L. Banfield, Giovanni Di Sandro

- 395-96 *Clinic*
Clinical teaching and demonstrations on the care of urological patients with special emphasis on the pre- and postoperative management. Operative clinics and clinical teaching. D. C. General Hospital. The Staff

- 397 *Urology*
Lectures covering the entire field of urology including diagnosis, treatment and urology pathology. (Fall—1 hour a week.) The Staff

- 495-96 *Clinic*
Clinical demonstrations, teaching in the University Clinic and pathological & x-ray microscopy with special attention given to diagnosis, prevention. University Hospital. (Three hours a week, in rotation, as scheduled during academic year.) The Staff

* Staff of Instruction for the academic year 1953-54.

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 Richard Bernard Castell, A.B., M.D., *Director of Health Services*
 Charles William Cole, Ph.D., *Dean of the Summer Sessions*
 Alan Thomas Deibert, A.M., *Advisor to Students from Foreign Countries*
 John Collum Einbinder, A.B., *Business Manager*
 Frederick Russell Houser, A.M., *Registrar*
 William David Johnson, B.S. in B.A., *Comptroller*
 Virginia Randolph Kirkbride, A.M., Ed.D., *Dean of Women*
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John Parks, M.S., M.D., *Dean of the School of Medicine; Medical Director, University Hospital*
 Angus MacIvor Griffin, Ph.D., *Associate Dean of the School of Medicine*
 Alvin Edward Parrish, M.D., *Associate Dean of the School of Medicine*
 Victor Frederick Ludewig, B.S., *Administrator of the University Hospital*
 Clayton Bernard Ethridge, M.D., *Director of Postgraduate Medical Education*

* For the academic year 1963-64.

THE UNIVERSITY

HISTORY AND ORGANIZATION

The George Washington University had its beginning in 1821 as The Columbian College in the District of Columbia. The name of the institution was changed in 1873 to Columbian University and in 1904 to The George Washington University. The debt of the University to George Washington whose name it bears is an intangible one.

George Washington, as President and as private citizen, had urgently insisted upon the establishment of a National University in the Federal City. There he hoped that, while being instructed in the arts and sciences, students from all parts of the country would acquire the habits of good citizenship, throwing off local prejudices and gaining at first hand a knowledge of the practice, as well as the theory, of republican government. To further the materialization of his hopes, Washington left a bequest of fifty shares of the Potomac Company "towards the endowment of a University to be established within the limits of the District of Columbia, under the auspices of the General Government, if that government should incline to extend a fostering hand towards it." The Congress never extended "a fostering hand". The Potomac Company passed out of existence and Washington's bequest became worthless.

Fully conscious of Washington's hopes, but motivated primarily by a great missionary urge and the need for a learned clergy, a group of dedicated ministers and laymen sponsored a movement for the establishment of a college in the District of Columbia. Inspired largely by the zeal and energy of the Reverend Luther Rice, they raised funds for the purchase of a site and petitioned Congress for a charter. After much delay and amendment, Congress granted a charter which was approved by President Monroe on February 9, 1821. To safeguard the College's nonsectarian character it provided "That persons of every religious denomination shall be capable of being elected Trustees; nor shall any person, either as President, Professor, Tutor or pupil, be refused admittance into said College, or denied any of the privileges, immunities, or advantages therefore, for or on account of his sentiments in matters of religion."

During the entire time when the institution was known as Columbian College, its activities were centered on College Hill, a tract of forty-six and a half acres between the present Fourteenth and Fifteenth Streets extending north from Florida Avenue to somewhat beyond Columbia Road. The Medical School was located downtown. For the better part of the Columbian University period, the buildings of the University were situated along H Street between Thirteenth and Fifteenth Streets. The Medical School group still remains there.

During the last half century the University's present plant has been developed in that section of the old First Ward familiarly known as "Foggy Bottom," between Nineteenth and Twenty-fourth Streets, south of Pennsylvania Avenue. Within a few squares are the White House, the Department of the Interior, the State Department, the World Bank, and many other governmental offices and international agencies. The area is not without its reminders of historic interest to the University. President Monroe who signed the Charter lived at 2017 Eye Street. The first President of the Board of Trustees, the Reverend Obadiah B. Brown, was for fifty years

the pastor of a church at Nineteenth and Eye Streets, and Washington selected Twenty-third and E Streets as the site of the National University he had hoped to see established.

The University as it is now organized consists of Columbian College of Arts and Sciences; which offers work leading to Associate's, Bachelor's, and Master's degrees; the Graduate Council, which offers work leading to the degree of Doctor of Philosophy; the professional schools, which include Medicine; Law; Engineering and Applied Science; Education; and Government, Business, and International Affairs; the College of General Studies; the Division of University Students; the Division of Air Science; and the Summer Sessions.

The George Washington University is privately endowed and is governed by a self-perpetuating Board of Trustees of which the president is an ex officio member.

ACADEMIC STATUS

The George Washington University is accredited by its regional accrediting agency, the Middle States Association of Colleges and Secondary Schools. This is important to students who wish to transfer credits from one institution to another.

The University is on the approved list of the American Association of University Women and is a member of the College Entrance Examination Board.

The School of Medicine has had continuous approval by the Council on Medical Education of the American Medical Association and the Association of American Medical Colleges. The degree of the School of Medicine is recognized by all State Examining Boards.

LOCATION

The University is in downtown Washington within a few blocks of the White House and the Federal Triangle of Government buildings, which house many of the departments of the Federal Government, and such museums of special interest to medical students as the Smithsonian Institution, the National Museum, and the Botanic Gardens.

THE SCHOOL OF MEDICINE

FACULTY AND STAFF OF INSTRUCTION

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HARRY FORD ANDERSON, M.D., *Professor Emeritus of Dermatology and Syphilology*
RALPH GREGORY BEACHLEY, M.D., Dr. P.H., *Professor Emeritus of Clinical Public Health Practice*
WALTER ANDREW BLOEDORN, A.M., M.D., Sc.D., *Professor Emeritus of Medicine*
DANIEL LERAY BORDEN, A.M., M.D., Sc.D., *Professor Emeritus of Clinical Surgery*

ROGER MORRISON CHOISSEUR, B.S., M.D., *Professor Emeritus of Pathology*
 RONALD ATMORE COX, A.B., M.D., *Professor Emeritus of Ophthalmology*
 HENRY LAURAN DARNER, A.B., M.D., *Professor Emeritus of Clinical Obstetrics and Gynecology*
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 WILLIAM HERNDON JENKINS, M.D., *Professor Emeritus of Otolaryngology*
 EDWARD LEWIS, M.D., *Professor Emeritus of Clinical Pediatrics*
 PRESTON ALEXANDER MCLENDON, B.S., M.D., *Professor Emeritus of Pediatrics*
 DANIEL BRUCE MOFFETT, M.D., *Professor Emeritus of Otolaryngology*
 GEORGE NORDLINGER, A.B., M.D., *Professor Emeritus of Clinical Obstetrics and Gynecology*
 WINFRED OVERHOLSER, A.B., M.D., Sc.D., LL.D., LL.D., *Professor Emeritus of Psychiatry*
 LELAND WILBUR PARR, Ph.D., *Professor Emeritus of Bacteriology*
 FREDERICK A. REUTER, M.D., *Professor Emeritus of Urology*
 JOSEPH HYRAM ROE, Ph.D., *Professor Emeritus of Biochemistry*
 GEORGE BYRON ROTH, A.B., M.D., *Professor Emeritus of Pharmacology*
 THOMAS CARLTON THOMPSON, B.S., M.D., *Professor Emeritus of Clinical Urology*
 CHARLES STANLEY WHITE, M.D., Sc.D., *Professor Emeritus of Surgery*

ACTIVE FACULTY AND STAFF OF INSTRUCTION*

THEODORE JUDSON ABERNETTY, B.S., M.D., *Associate Clinical Professor of Medicine*
 KRISTOFF ABRAHAM, M.D., *Clinical Instructor in Neurology*
 JOSEPH ABRAHAM, M.D., *Assistant Clinical Professor of Psychiatry*
 HERBERT ABRAHAMSON, A.M., M.D., *Assistant Clinical Professor of Medicine*
 JOHN PLETCH ADAMS, B.S., M.D., *Clinical Professor of Orthopedic Surgery*
 EDWARD ADELSON, B.S., M.D., *Assistant Clinical Professor of Medicine*
 PAUL CHARLES ADKINS, A.B., M.D., *Associate Professor of Surgery*
 MARVIN LEON ADLAND, B.S., M.D., *Assistant Clinical Professor of Psychiatry*
 LEWIS AFFRONTI, Ph.D., *Assistant Professor of Microbiology*
 SOLOMON NAPHTHALI ALBERT, A.B., M.D., *Assistant Clinical Professor of Anesthesiology*
 THEODORE CRANDALL ALFORD, A.B., M.D., *Assistant Professor of Surgery*
 FRANK DUANE ALLAN, Ph.D., *Associate Professor of Anatomy*
 MELVIN GUSTAVUS ALPER, A.B., M.D., *Assistant Clinical Professor of Ophthalmology*
 LOUIS KATZ ALPERT, B.S., M.D., *Professor of Medicine*
 SEYMOUR ALPERT, A.B., M.D., *Professor of Anesthesiology*
 BARBARA OLSON ALVING, Ph.D., *Assistant Professor of Physiology*
 JAMES FRANCIS AMBURY, B.S., M.D., *Associate in Medicine*
 HARVEY AMMERMAN, B.S., M.D., *Assistant Clinical Professor of Neurological Surgery*
 LEO DAVID AMOROSI, B.S., M.D., *Clinical Instructor in Obstetrics and Gynecology*
 THEODORE HERBERT ANDERS, A.B., M.D., *Clinical Instructor in Pediatrics*
 ROBERT HARPER ANDERSON, M.D., *Clinical Instructor in Pediatrics*
 WILLIAM STATON ANDERSON, A.B., M.D., *Clinical Professor of Pediatrics*
 JOHN LAWRENCE ANGEL, Ph.D., *Professorial Lecturer in Anatomy*
 RONALD ALAN APTEH, M.D., *Clinical Instructor in Medicine*
 IRWIN ARDAM, A.B., M.D., *Clinical Instructor in Medicine*
 CLAY MARGRAVE ARMSTRONG, A.B., M.D., *Associate in Physiology*

* The Staff of Instruction listed here and at the head of each department is for the academic year 1957-58.

- SILAS BABIN, JR., M.D., *Associate in Medicine*
- FRANK SOLOMON BACON, B.S., M.D., *Associate Clinical Professor of Medicine*
- ALFRED BAER, A.B., M.D., *Assistant Clinical Professor of Medicine*
- WILLIAM ELDRIDGE BACEANT, M.D., *Clinical Instructor in Anesthesiology*
- JOHN MARTYN BAILEY, Ph.D., *Associate Professor of Biochemistry*
- WILLIAM OTIS BAILEY, JR., M.D., *Assistant Clinical Professor of Medicine*
- JAMES PRAY BAKER, M.D., M.S., *Clinical Instructor in Surgery*
- WILLIAM GEORGE BALLINGER, A.B., M.D., *Assistant Clinical Professor of Dermatology*
- GIUSEPPE BALSANO, M.D., *Assistant Clinical Professor of Physical Medicine and Rehabilitation*
- LOUIS SOL BARON, Ph.D., *Special Lecturer on Microbial Genetics*
- SOLOMON EUREM BARR, A.B., M.D., *Clinical Instructor in Medicine*
- ROBERT HENRY BARTER, B.S., M.D., *Professor of Obstetrics and Gynecology*
- WALTER EARL BARTON, B.S., M.D., *Lecturer in Psychiatry*
- JOHN CHARLES BARTONI, Ph.D., *Assistant Professor of Anatomy*
- JEANNE GECILE BATEMAN, A.B., M.D., *Clinical Instructor in Medicine*
- HARRY CLARK BATES, JR., B.S., M.D., *Clinical Instructor in Medicine*
- ALBERT BAUER, M.D., *Assistant Clinical Professor of Radiology*
- EMIL HERBERT BAUERFIELD, A.B., M.D., *Associate in Medicine*
- VIRGINIA PATTERSON BELLAR, A.B., M.D., *Associate in Medicine*
- JOSEPH BERNSTEIN, A.B., M.D., *Associate Clinical Professor of Medicine*
- SAMMYE BELCHER, B.S., M.D., *Clinical Instructor in Medicine*
- SAMUEL MICHAEL BELINSKY, A.B., M.D., *Clinical Instructor in Obstetrics and Gynecology*
- ROBERT REID BELTON, A.B., M.D., *Assistant Clinical Professor of Medicine*
- RUTH BOSCHWITZ BENEDICT, A.B., M.D., *Assistant Clinical Professor of Medicine*
- MARIA HENRI BENZINGER, M.D., *Assistant Clinical Professor of Anesthesiology*
- ROGER BERGSTROM, M.D., *Clinical Instructor in Pediatrics*
- ROBERT WILLIAM BERLINER, B.S., M.D., *Special Lecturer on Renal Disease*
- HARRY LOUIS BERMAN, B.S., M.D., *Assistant Clinical Professor of Radiology*
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- SOLOMON RODNEY BERSACK, B.S., M.D., *Assistant Clinical Professor of Radiology*
- CHRISTOPHER THEODORE BEVER, A.B., M.D., *Assistant Clinical Professor of Psychiatry*
- LEWIS HENRY BIBEN, M.D., *Clinical Instructor in Medicine*
- ROLAND ESSIG BIEREN, M.D., *Clinical Instructor in Obstetrics and Gynecology*
- CATHARINE BIRCH, A.B., M.D., *Assistant Clinical Professor of Otolaryngology*
- EMILIE ANNABELLE BLACK, B.S., M.D., *Clinical Instructor in Pediatrics*
- BRIAN BLADES, A.B., M.D., *Lewis Saltz Professor of Surgery*
- JEROME BERNARD BLOCK, A.B., M.D., *Associate in Physiology*
- BARUCH SAMUEL BLUMBERG, M.D., D.Phil. (Oxon.), *Associate Professorial Lecturer in Anatomy*
- LESTER SYLVAN BLUMENTHAL, A.B., M.D., M.S. in Med., *Assistant Clinical Professor of Medicine*
- NORMAN KAY BOHRER, M.D., *Clinical Instructor in Medicine*
- JOHN HENRY BOUMA, A.B., M.D., *Clinical Instructor in Psychiatry*
- MAXWELL BOVERMAN, A.B., M.D., *Clinical Instructor in Psychiatry*
- THOMAS BRADLEY, A.B., M.D., *Assistant Clinical Professor of Surgery*
- ERNEST BRAY, M.S., M.D., *Assistant Clinical Professor of Orthopedic Surgery*
- JAMES THOMAS BRENNAN, A.B., M.D., *Assistant Clinical Professor of Radiology*
- FRANCES ELIZABETH BRENNER, A.B., M.D., *Clinical Instructor in Orthopedic Surgery*

- ALEXANDER BRESLOW, M.S., M.D., *Assistant Professor of Pathology*
 GRESHAM DOUGLAS BRIGGS, B.S., M.D., *Clinical Instructor in Surgery*
 ALICE BRIGHAM, A.B., M.D., *Associate in Medicine*
 ALBERT SEYMOUR BRIGHT, A.B., M.D., *Clinical Instructor in Obstetrics and Gynecology*
 ALFRED BRIGLIO, M.D., *Associate Clinical Professor of Medicine; Associate University Physician*
 WARREN DANIEL BRILL, B.S., M.D., *Assistant Clinical Professor of Medicine*
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 BERTRAM BROWN, A.B., M.P.H., M.D., *Clinical Instructor in Psychiatry*
 BROOKS GIDEON BROWN, M.D., *Clinical Instructor in Surgery*
 CRAWFORD SOUTHWELL BROWN, A.B., M.D., *Assistant Clinical Professor of Dermatology*
 HALLA BROWN, M.D., *Associate Clinical Professor of Medicine*
 JACK HAROLD UPTON BROWN, Ph.D., *Special Lecturer in Physiology*
 RAYMOND NATHAN BROWN, M.D., *Clinical Instructor in Anatomy*
 THOMAS McPHERSON BROWN, A.B., M.D., *Eugene Meyer Professor of Medicine*
 HENRY GASSON BRYAN, A.B., M.D., *Clinical Instructor in Dermatology*
 GEORGE CUMMING BUCHANAN, A.B., M.D., *Clinical Instructor in Medicine*
 DEXTER MEANS BULLARD, Ph.B., M.D., *Clinical Professor of Psychiatry*
 MAURICE BENJAMIN BURG, A.B., M.D., *Associate in Physiology*
 LLOYD BYRON BURK, JR., A.B., M.D., *Assistant Clinical Professor of Surgery*
 JAMES THEODORE BURNS, M.D., *Associate in Medicine*
 WILLIAM WESLEY BURR, Ph.D., M.D., *Professorial Lecturer on Isotopes*
 BOYD LEE BURRIS, B.S., M.D., *Clinical Instructor in Psychiatry*
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 CESAR AUGUSTO CACHERIS, B.S., M.D., *Assistant Clinical Professor of Medicine*
 PAUL CALABRISI, Ph.D. (Cantab.), *Professor of Anatomy*
 JUAN CALATAYUD, M.D., *Assistant Professor of Medicine*
 DWIGHT CALLAGHAN, B.S., M.D., *Associate Clinical Professor of Obstetrics and Gynecology*
 MARGARET ELIZABETH CALLAN, A.B., M.D., *Associate University Physician*
 DALE CORBIN CAMERON, A.B., M.D., M.P.H., *Clinical Professor of Psychiatry*
 JEROME WOLF CANTER, M.D., *Clinical Instructor in Surgery*
 WILLIAM ROBERT CARROLL, Ph.D., *Professorial Lecturer on Proteins*
 MARIE MULLANEY CASSIDY, Ph.D., *Emerging Assistant Professor of Physiology*
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 GEORGE ALLYN CHAPMAN, B.S., M.D., *Associate in Medicine*
 RICHARD ALLEN CHAVE, A.B., M.D., *Clinical Instructor in Neurology*
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 FRANCIS CHUCKER, M.D., *Clinical Instructor in Medicine*
 LLOYD EUGENE CHURCH, D.D.S., Ph.D., *Lecturer in Anatomy*

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- JAMES CLIFFORD, M.D., *Clinical Instructor in Medicine*
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- HERBERT HAROLD DIAMOND, M.D., *Clinical Instructor in Pediatrics*
- ROBERT JAY DOBROW, A.B., M.D., *Clinical Instructor in Medicine*
- SAMUEL MAYER DODEK, A.M., M.D., *Clinical Professor of Obstetrics and Gynecology*
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 ALAN McCULLOCH DRUMMOND, A.B., M.D., *Assistant Clinical Professor of Psychiatry*
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 LEONARD J. DUTH, A.B., M.D., *Assistant Clinical Professor of Psychiatry*
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 HENRY DUNLOP ECKER, B.S., M.D., *Assistant Clinical Professor of Medicine*
 GEORGE THEMISTOCLES ECONOMOS, B.S., M.D., *Clinical Instructor in Medicine*
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 WILFRED RUSSELL EHRLMANTRAUT, B.S., M.D., *Associate in Medicine*
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 JULIUS ROBERT EISELIS, M.D., *Assistant Clinical Professor of Obstetrics and Gynecology*
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 RICHARD VERNON ERKENBECK, B.S., M.D., *Clinical Instructor in Obstetrics and Gynecology*
 CLAYTON BERNARD ETHERIDGE, M.D., *Professor of Medicine; Director of Postgraduate Medical Education*
 JOHN MCCALLUM EVANS, A.B., M.D., *Professor of Medicine*
 CHARLES JEROME EVERDING, M.D., *Associate in Medicine*
 THEODORE MYLES FARBER, Ph.D., *Assistant Professor of Pharmacology*
 MARION DEES MILLER FARIS, A.B., M.D., *Associate in Radiology*
 OTIS RHANOR FARLEY, A.B., M.D., *Associate Clinical Professor of Medicine*
 JOHN ANTHONY FAHRELL, M.D., *Assistant Clinical Professor of Psychiatry*
 JOSEPH FRANCIS FAZLKAS, M.D., *Associate Clinical Professor of Neurology*
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 ERIC FEIGL, B.S., M.D., *Associate in Physiology*
 MORRIS FEITEL, M.D., *Clinical Instructor in Pediatrics*
 ROBERT HANNA FELIX, M.D., M.P.H., *Special Lecturer in Psychiatry*
 WILLIAM ROBERT FELTS, JR., B.S., M.D., *Associate Professor of Medicine*
 LESLIE HOWARD FENTON, M.D., *Instructor in Medicine*
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 MICHAEL FIELD, A.B., M.D., *Associate in Physiology*
 DANIEL FINUCANE, B.S., M.D., *Professorial Lecturer in Preventive Medicine and Community Health*

- GERALD JOHN FISHER, A.B., M.D., *Associate in Medicine*
 LESTER WALTER FIX, M.D., *Assistant Clinical Professor of Pathology*
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 RICHARD CROSSMAN FOWLER, B.S., M.D., *Assistant Professor of Medicine*
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 FRITZ ADOLPH FRIEDMAN, M.D., *Clinical Professor of Psychiatry*
 ADOLPH FRIEDMAN, A.B., M.D., *Assistant Clinical Professor of Medicine*
 JOSEPH MARSHALL FRIEDMAN, A.B., M.D., *Associate in Obstetrics and Gynecology*
 DAVID FROST, B.S., M.D., M.P.H., *Associate Clinical Professor of Preventive Medicine and Community Health*
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 JAMES QUINCY GANT, JR., M.S., M.D., *Clinical Professor of Dermatology*
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 JOSEPH GILMORE, Ph.D., *Associate in Physiology*
 EUGENE SOLOMON GLADSDEN, B.S., M.D., *Assistant Clinical Professor of Medicine*
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 MORTON GLUCK, A.B., M.D., *Clinical Instructor in Medicine*
 IRA DAVID GODWIN, B.S., M.D., *Clinical Instructor in Pathology*
 HERBERT ABRAHAM GOLDBERG, M.B., Ch.B., *Associate in Urology*
 SEYMOUR ZONALD GOLDBLATT, B.S., M.D., *Clinical Instructor in Pediatrics*
 THOMAS COMBES, A.B., M.D., *Associate Clinical Professor of Medicine*
 NELSON ALPHONSE GONDER, B.S., M.D., *Assistant Clinical Professor of Medicine*
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JUNE 5, 1968

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Robert Paul Sachs		Agriculture and Applied Science	
A.E. 1926, Rockefeller University	Me.	Bernard Marcus, Jr.	D.C.
Herbert Nathan Schacter		A.E. 1926, The George Washington	
A.E. 1926, University of Colorado	D.C.	University	
Kenneth Brown Schaeffer		William Thomas Tenny	N.J.
A.E. 1926, Princeton University	D.C.	Ernest Richard Tread	Calif.
LeRoy Jerome Seiderman		A.E. 1926, University of California	
A.E. 1926, University of Virginia	Va.	George William Wynn, Jr.	Va.
James Fletcher Stone		A.E. 1926, U. S. Military Academy	
A.E. 1926, Jonathan Young University	Va.	Nathaniel Wynn	Ariz.
Dwight Dwight Stewart		A.E. 1926, University of Arizona	
A.E. 1926, Oregon State College	Oreg.	James Earl Wynn	Wyo.
Thomas Daniel Sullivan, Jr.		A.E. 1926, Brigham Young University	
Stephen Jean Sutherland	Me.	Michael John Young	Calif.
A.E. 1926, Washington State University	Wash.	A.E. 1926, Stanford University	
Max Alexander Hurler, Jr.		DeVos George Wynn	Utah
A.E. 1926, Virginia Military Institute	Va.	A.E. 1926, Brigham Young University	
Robert Antonio Sussman	Fla.	Emory DuVoy Young	Mich.
		A.E. 1926, Purdue University	

STUDENTS REGISTERED IN THE SCHOOL OF MEDICINE

1963-64

FIRST YEAR

Albright, Kenneth W.	Albany	Robert S.	Calif.
Amos, Barbara J.	Calif.	A.B. 1961, University of California	Pa.
B.S. 1962, Fresno State College		Ernest R.	R.I.
Barnett, Thomas L.	Calif.	A.B. 1963, Franklin and Marshall College	N.Y.
A.B. 1961, University of the Pacific		Michael F.	N.Y.
Bass, Richard J.	N.J.	A.B. 1963, Providence College	Calif.
A.B. 1961, Lafayette College		Michael J.	Calif.
Bates, William S., Jr.	S.C.	A.B. 1961, Hobart College	Utah
B.S. 1962, College of Charleston		Michael S.	Wash.
Beckman, Thomas A.	D.C.	A.B. 1963, Bryn Mawr College	Md.
B.S. 1961, Georgetown University		Robert J.	Ohio
Belmont, Michael L.	Mo.	B.S. 1963, University of Utah	Wash.
B.S. 1961, University of Maryland		Hedric R.	Ohio
Blanco, Val J.	Wash.	A.B. 1961, University of Washington	Wash.
A.B. 1961, University of Washington		Elizabeth E.	Wash.
Bloom, James S.	N.M.	A.B. 1963, Hood College	Calif.
Bloom, Cyril M.	Calif.	Howard L.	Calif.
A.B. 1961, University of Washington		A.B. 1961, DePaul University	Calif.
Bloomfield, Robert D.	Pa.	Whitworth College	Pa.
B.S. 1961, Lafayette College		University of the South	Pa.
M.S. 1961, Massachusetts Institute of Technology		D.	R.I.
Bond, Frank I.	N.J.	Robert G.	N.Y.
A.B. 1961, Lafayette College		B.S. 1962, University of Rhode Island	N.Y.
Brown, Richard R.	Ohio	Jerry H.	N.Y.
A.B. 1961, Ohio Wesleyan University		A.B. 1963, Brooklyn College	N.Y.
Brown, Harry W.	Pa.	Edward L.	N.Y.
M.E. 1961, Catholic University of America		A.B. 1963, New York University	N.Y.
Buckner, Richard E.	Utah	Daniel N.	N.Y.
Carr, Stephen L.	Utah	A.B. 1962, Hofstra College	Pa.
Carr, William J.	Calif.	Michael S.	N.Y.
A.B. 1961, Stanford University		A.B. 1963, University of Pennsylvania	N.Y.
Chapman, Terry P.	Wash.	Richard L.	N.Y.
Chapman, Henry H.	Pa.	A.B. 1963, Franklin and Marshall College	Pa.
B.S. 1961, University of Pittsburgh		Bertram S.	Pa.
Chapman, Eugene D. III	Utah	Brooklyn College	Ohio
Chapman, Arthur P.	Mo.	John L.	D.C.
B.S. 1961, Montana State College		Frances J.	Pa.
Chapman, Donald B.	Utah	A.B. 1963, Yeshiva University	N.Y.
Chapman, Paul I.	Mo.	John B.	N.Y.
B.S. 1961, University of Colorado		A.B. 1963, University of Scranton	N.J.
Chapman, George R.	N.Y.	Herbert S.	N.Y.
B.S. 1961, College of the Holy Cross		A.B. 1963, Brooklyn College	N.Y.
Chapman, Paul J.	N.Y.	Michael	Calif.
A.B. 1961, Washington and Jefferson College		A.B. 1963, Georgetown University	Utah
Chapman, Richard R.	D.C.	Charles E.	Md.
Chapman, Philip M.	N.J.	B.S. 1963, St. John's University	Calif.
A.B. 1961, College of the Holy Cross		Alice M.	Utah
Chapman, John H.	Pa.	Stephen S.	Md.
A.B. 1961, Lafayette College		A.B. 1963, University of Southern California	Utah
Chapman, William L.	Ill.	Arthur C.	Md.
A.B. 1961, DePaul University		A.B. 1963, Brigham Young University	Utah
Chapman, John C. II	Ariz.	John C.	Calif.
B.S. 1961, University of Arizona		A.B. 1963, University of North Carolina	Calif.
Chapman, Michael F.	Calif.	Craig S.	Ohio
A.B. 1961, San Francisco State College		Billy C.	Pa.
Chapman, John J.	Mo.	A.B. 1962, University of California	D.C.
B.S. 1961, Santa Clara College		Lawrence H.	Calif.
Chapman, Mary Ann, Joe L.	Puerto Rico	B.S. 1962, B.S. in Ed. 1963, Ohio State	Calif.
A.B. 1961, Johns Hopkins University		Stanley G.	Calif.
Chapman, H. J.	N.J.	A.B. 1961, Temple University	Calif.
B.S. 1961, Mount Saint Mary's College		Mary E.	Calif.
Chapman, Frank J. Jr.	N.J.	Leslie R.	Calif.
B.S. 1961, Washington University		A.B. 1963, University of California at Los Angeles	Calif.
Chapman, William E. III	Ohio		
A.B. 1961, Western Reserve University			
Chapman, Alan C.	Pa.		
A.B. 1961, Franklin and Marshall College			

[illegible]

Lundeman, Gerald W. A.B. 1962, Harvard University	Md.	Reidy, Robert I. B.S. 1961, The George Washington University	Pa.
Markham, Charles E. A.B. 1962, University of California	Calif.	Reidy, Robert M. A.B. 1961, University of Maine	Me.
Merrill, Stephen H. A.B. 1961, The George Washington University	Md.	Reidy, Peter D. T. A.B. 1961, Harpur College	N.Y.
Merrill, Philip G. A.B. 1962, Duke University	N.Y.	Reidy, John D. B.S. 1961, The George Washington University	Md.
McCauley, Arthur M. B.S. 1961, University of Idaho	Calif.	Reidy, Garrett H. A.B. 1958, Waynesburg College	N.J.
McMahon, Douglas E. A.B. 1961, University of Pennsylvania	Idaho	Reidy, Charles Y. A.B. 1961, Johns Hopkins University	Utah
McPherson, Warren F. A.B. 1961, University of Pennsylvania	Va.	Reidy, Michael T. A.B. 1961, Johns Hopkins University	Pa.
Mohr, John K. A.B. 1962, Washington University	Calif.	Reidy, Gerald L. B.S. 1960, American University	W.Va.
Neck, Thomas J. A.B. 1962, University of Pennsylvania	D.C.	Reidy, Donald F. A.B. 1961, Washington and Lee University	Calif.
Nelson, George W. B.S. 1961, U. S. Military Academy	Utah	Reidy, William J., Jr. B.S. 1961, College of the Pacific	Calif.
Nelson, David R. A.B. 1962, Harvard University	D.C.	Reidy, Robert G. B.S. 1961, University of Maryland	Md.
Nelson, Frank R. A.B. 1962, University of Utah	Utah	Reidy, John L. A.B. 1961, Dartmouth College	Calif.
Reidy, William R. A.B. 1962, Rutgers University	Ohio	Reidy, Ulla K. M. B.S. 1953, Springfield College	Calif.
Reidy, E. J. H. A.B. 1962, Rutgers University	N.J.	Reidy, Alan E. A.B. 1961, Johns Hopkins University	Ohio
Reidy, John I. A.B. 1962, University of Colorado	Calif.	Reidy, Roger J. A.B. 1961, Dartmouth College	Mich.
Reidy, Thomas I. A.B. 1962, University of Colorado	Calif.	Reidy, Thomas H. A.B. 1961, Dartmouth College	Md.
Reidy, Howard S. A.B. 1962, Bates College	N.Y.	Reidy, Richard K. B.S. 1961, Michigan State University of Agriculture and Applied Science	N.J.
Reidy, Thomas E. A.B. 1962, Bates College	D.C.	Reidy, Barry K. A.B. 1961, Dartmouth College	D.C.
Reidy, Lynn L. J. A.B. 1962, Princeton University	N.J.	Reidy, William H. J. A.B. 1961, Wesleyan University	Md.
Reidy, Thomas E. B.S. 1961, University of Maryland	Md.	Reidy, Kent M. A.B. 1961, Juniata College	Utah
Reidy, Michael J. B.S. 1962, City University of New York	N.Y.	Reidy, Warren C., Sr. B.S. 1961, Juniata College	Pa.
Reidy, Frank P. A.B. 1962, Providence College	R.I.	Reidy, Paul Q. B.S. in Phar. 1960, University of Pittsburgh	Idaho
Reidy, Robert W. A.B. 1962, Catholic University	Calif.	Reidy, Raymond G. B.S. 1961, Brigham Young University	Calif.
Reidy, David G. A.B. 1962, Catholic University	D.C.	Reidy, John A. A.B. 1960, Occidental College	N.J.
Reidy, P. A.B. 1962, University of California	Calif.	Reidy, Stanley M. A.B. 1961, Rutgers University	Calif.
Reidy, Barry J. A.B. 1962, University of Pennsylvania	N.Y.	Reidy, Robert D. A.B., B.S. in Med. Tech. 1959, University of Colorado	British Columbia
Reidy, Douglas S. A.B. 1962, The George Washington University	N.Y.	Reidy, Cecil R. B.S. 1960, Howard University	Va.
Reidy, Ronald G. A.B. 1962, University of Colorado	Calif.	Reidy, Thomas L. A.B. 1961, The George Washington University	N.Y.
Reidy, Howard S. A.B. 1962, The George Washington University	D.C.	Reidy, Sheldon J. A.B. 1961, The George Washington University	D.C.
Reidy, Frederick M. B.S. 1962, University of Southern California	Calif.	Reidy, Norman S. B.S. 1961, The George Washington University	Hong Kong
Reidy, Rosario R. B.S. 1962, Long College	N.Y.	Reidy, William A., Jr. A.B. 1958, Wake Forest College	N.C.
Reidy, Dennis J. B.S. 1962, King's College, Pa.	Pa.	Reidy, Carmen M. A.B. 1961, Trinity College	Puerto Rico
		Reidy, Mary M. A.B. 1961, University of Arizona	Md.
		Reidy, William C. B.S. 1961, University of New York	Calif.
		Reidy, Anthony J. B.S. 1957, City University of New York	N.Y.
		Reidy, Marvin I. B.S. 1961, College of the Holy Cross	Md.
		Reidy, Daniel S. B.S. 1961, University of Idaho	Idaho
		Reidy, Bud H. B.S. 1961, University of Idaho	Wyo.
		Reidy, Robert D. A.B. 1961, Central Washington College of Education	

THIRD YEAR

Anderson, Anthony A. III B.S. 1961, University of Utah	Utah	Laughlin, William A., Jr. A.B. 1958, Wake Forest College	Pa.
Barnes, Nicholas A. B.S. 1960, Iona College	N.Y.	Lopez-Molina, Carmen M. A.B. 1961, Trinity College	Pa.
Barnes, Anthony D. B.S. 1961, Marietta College	D.C.	Lopez-Molina, Mary M. A.B. 1961, University of Arizona	Calif.
Barnes, John W. B.S. 1961, Marietta College	Md.	Lopez-Molina, William C. B.S. 1961, University of New York	N.Y.
Barnes, John W. B.S. 1961, University of Maryland	Md.	Lopez-Molina, Marvin I. B.S. 1961, College of the Holy Cross	Idaho
Barnes, Robert W. A.B. 1961, Ohio Wesleyan University	Va.	Lopez-Molina, Bud H. B.S. 1961, University of Idaho	Wyo.
Barnes, Francis C., Jr. B.S. 1961, University of Utah	Utah	Lopez-Molina, Robert D. A.B. 1961, Central Washington College of Education	

McPhetres, David W. A.B. 1961, Whittier College	Alaska	Beasin, Reif H. A.B. 1960, Johns Hopkins University	Venezuela
Mering, James H. III	Pa	Benderson, Samuel R. B.S. 1959, University of Arizona	Ariz.
Milward, David K. B.S. 1961, Tufts University	N.Y.	Bent, Edward L. B.S. 1961, University of Idaho	Idaho
Mitchell, John H. A.B. 1961, Ohio Wesleyan University	D.C.	Beady, John F. A.B. 1961, Providence College	R.I.
Mosier, Robert L.	Ind.	Bendick, John H. B.S. 1962, University of Notre Dame	D.C.
Musick, Gerald G. Roy S. B.S. 1961, The American University	Va.	Berg, Edward W. A.B. 1960, Trinity College	Conn.
Nixon, Maureen K. A.B. 1961, Catholic University of America	D.C.	Burroughs, John G. A.B. 1962, Amherst College	D.C.
Reinwald, Robert P. B.S. 1961, College of the Holy Cross	N.Y.	Burton, David C. B.S. 1961, M.S. 1961, The George Washington University	Va.
O'Neill, Thomas M. A.B. 1961, Catholic University of America	D.C.	Cassidy, Dwight L. Cleveland, Edward S.	Calif.
Orin, David W. A.B. 1961, Drake University	Iowa	Cassidy, Edward S. B.S. 1961, University of Rhode Island	R.I.
Orin, Robert D. B.S. 1961, College of William and Mary	Conn.	Chase, Philip K. Chase, John R.	Calif.
Orin, John L. B.S. 1961, Tufts University	Conn.	B.S. 1961, 1962, University of Pittsburgh	Pa.
Orin, Lawrence B.S. 1961, Brooklyn College	D.C.	Corn, Anne D. Cotton, Stephen H.	W.Va.
Orin, Martin L. B.S. 1961, University of Maryland	N.Y.	Cott, Charles D. A.B. 1961, West Virginia University	Utah
Orin, Peter J. B.S. 1961, Virginia University	Mo.	Edwards, Charles B. B.S. 1961, Brigham Young University	Utah
Orin, Robert L. Jr. A.B. 1961, Stanford University	N.Y.	Fenn, Stanley L. B.S. 1961, Ohio State University	Ohio
Orin, John C. A.B. 1961, Iowa University	Ariz.	Flanagan, William U. A.B. 1961, University of Virginia	N.J.
Orin, Harry H. Jr. A.B. 1961, Washington University	N.Y.	Frank, William G. F.M.C. 1961, University of Louisville	Va.
Orin, Thomas W. A.B. 1961, University of Cincinnati	Conn.	F.D. 1962, Virginia Presbyterian Seminary	
Orin, Michael B. A.B. 1961, University of Rochester	Calif.	Gardner, Robert H. A.B. 1961, Johns Hopkins University	Mo.
Orin, Andrew J. A.B. 1961, University of Michigan	N.Y.	Gardner, Harvey R. A.B. 1961, University of California	Calif.
Orin, Donald F. B.S. 1961, Ohio State University	N.J.	Gatz, Thomas R. B.S. 1961, Pennsylvania State University	Pa.
Orin, Carl B.S. 1961, University of Pittsburgh	Conn.	Gerschlager, George B.S. 1961, Temple University	Pa.
Orin, George W. B.S. 1961, University of Pittsburgh	Ind.	Hartman, William F. B.S. 1961, Mount Saint Mary's College, Md.	N.Y.
Orin, Paul C. A.B. 1961, Miami University	Pa.	Hartman, George R. B.S. 1961, Ohio State University of Agriculture and Applied Science	Idaho
Orin, Charles J. A.B. 1961, Case Western Reserve University	Ohio	Hartman, Carl A. A.B. 1961, Princeton University	N.Y.
Orin, Robert R. B.S. 1961, The George Washington University	Mo.	Hart, William M. B.S. 1961, University of Wisconsin	Wis.
Orin, Walter V. R., Jr. B.S. 1961, U.S. Naval Academy	D.C.	Hart, John L. Hart, Jimmy G.	Wash.
Orin, Harry M. B.S. 1961, University of Maryland	Va.	Hart, John L. B.S. 1961, Washington and Lee University	D.C.
Orin, Warren B. A.B. 1961, Occidental College	Mo.	Hart, Alan A. A.B. 1961, The George Washington University	D.C.
Orin, Robert R. A.B. 1961, Rutgers University	W.Va.	Hartman, Robert G. A.B. 1961, Yale University	D.C.
	Calif.	Hartman, John R. A.B. 1961, Occidental College	Calif.
	N.J.	Hartman, Samuel B. Hartman, Carl Ernest	D.C.
		B.S. 1961, University of Utah	Utah
		Hart, Martin R. A.B. 1961, The George Washington University	D.C.
		Katz, Ben D. A.B. 1961, San Jose State College	Calif.
	Ga.	Kelley, Clifford J. A.B. 1961, Brigham Young University	Idaho
	Calif.	Kelley, William M. A.B. 1961, University of Florida	Fla.
	Pa.	Kelley, John L. A.B. 1961, Harvard College	Mass.
	Pa.	Kelley, Stanley P., Jr. B.S. 1961, Temple University	Pa.
	Pa.	Lane, John E. A.B. 1961, New York University	N.Y.

FOURTH YEAR

Amesbury, Danny F. B.S. 1961, Furman University	Ariz.
Amesbury, Harold F. A.B. 1961, Los Angeles State College of Arts and Sciences	Idaho
Amesbury, John F. B.S. 1961, DePaul University	Fla.
Amesbury, William S. B.S. 1961, Duke University	Mass.
Amesbury, Ronald A. B.S. 1961, Montana State College	Pa.
Amesbury, Robert L. A.B. 1961, University of Pennsylvania	N.Y.

Leah, Lawrence T. A.B. 1961, The George Washington University	D.C.	Sato, Mary K. A.B. 1961, The George Washington University	Vt.
Leah, George W. Leah, Jerry M. Masters, George P. II Roth, John, Brigham Young University Murray, Stephen D. Murray, Joseph S. A.B. 1961, Johns Hopkins University	Ohio Calif. Utah N.Y. Wisc.	Schaefer, Luis A. S.S. 1961, Georgetown University Schoen, Karl L. B.S. 1961, Washington State University Shelton, Maxwell D. A.B. 1961, The George Washington University	Puerto Rico Wash. D.C.
Mason, Milton J. B.S. 1957, University of California Mason, Richard A. A.B. 1961, Lafayette College Mason, David L. A.B. 1961, University of California Mason, Norman C. A.B. 1961, Washington and Jefferson College Newman, John S. B.S. 1961, Morris Harvey College Nowell, Peter J. A.B. 1961, Oberlin College Norton, Richard A. A.B. 1961, Cornell University Norton, Peter A.B. 1961, Western Reserve University Norton, Frederick G. A.B. 1961, University of Pennsylvania Patterson, Robert D. A.B. 1961, University of Missouri Patterson, Joseph P. A.B. 1961, Middlebury College Pell, Richard A.S. 1961, Boston University Petersen, Robert V. A.B. 1961, West Virginia University Rosen, Robert M. A.B. 1961, Hamilton College Rice, Ronald R. A.B. 1961, University of Virginia Rice, Louis I. A.B. 1961, The George Washington University	Calif. Calif. N.J. D.C. N.M. D.C. Ohio Wisc. Md. Mo. Texa. Ill. W. Va. D.C. N.J. D.C.	Shelton, George I. B.S. 1961, Moravian College Shelton, Herbert I. B.S. 1961, Long Island University Tabak, Richard W. A.B. 1961, Stanford University Tarnoff, Albert P. A.B. 1961, The George Washington University Tarnoff, Albert R. B.S. 1961, Long Beach State College Tarnoff, Robert L. B.S. 1961, University of Idaho Vanderbilt, Egils B.S. 1961, University of New Hampshire Wendell, Leonard B.S. 1961, M.S. 1960, The George Washington University Wendell, Thomas M. A.B. 1961, University of Virginia Wendell, Robert B. A.B. 1961, Brigham Young University Wendell, Robert L. A.B. 1961, Stanford University Wendell, Charles R. B.S. 1961, American University Wendell, Walter S., Jr. A.B. 1961, Stanford University Zachary, Robert J. A.B. 1961, University of Rochester Zachary, Jack E. B.S. 1961, University of Maryland	N.A. N.A. Calif. N.A. Calif. N.H. D.C. Vt. N.H. D.C. Vt. Calif. Vt. Calif. N.A. Calif. N.A. Calif. N.A.

SUMMARIES OF REGISTRATION 1963-64

NUMBER OF REGISTRANTS

Class entering 1963	109
Class entering 1962	92
Class entering 1961	90
Class entering 1960	89

GEOGRAPHICAL DISTRIBUTION OF STUDENTS

Alaska	1	New York	47
Arizona	4	North Carolina	1
California	54	Ohio	14
Colorado	3	Oklahoma	1
Connecticut	5	Oregon	1
Dist. of Columbia	39	Pennsylvania	27
Florida	1	Rhode Island	6
Georgia	1	South Carolina	2
Hawaii	1	South Dakota	1
Idaho	11	Texas	1
Illinois	7	Utah	30
Iowa	1	Virginia	22
Kansas	2	Washington	7
Maryland	23	West Virginia	6
Massachusetts	5	Wisconsin	2
Michigan	2	Wyoming	1
Mississippi	1	Puerto Rico	3
Missouri	2	British Guiana	1
Montana	3	China	1
New Hampshire	1	Costa Rica	1
New Jersey	24	Hong Kong	1
New Mexico	2	Vietnam	1

GRADUATES OF COLLEGES REGISTERED IN THE SCHOOL OF MEDICINE

American University	3	DePauw University	3
Amherst College	1	Drake Junior College	1
Antioch College	1	Drake University	1
Aronson, University of	1	Drew University	1
Bates College	3	Duke University	8
Baylor University	1	Eastern Missouri College	1
Baylor Young University	13	Eastern Montana College of Education	1
Brigham Young University	6	Earlham College	1
Brown University	2	Fairleigh Dickinson College	1
Bryn Mawr College	1	Florida, University of	1
Buffalo University	1	Franklin and Marshall College	3
California, University of	1	Florida State College	2
Cornell College	28	Furman University	1
Georgia Institute of Technology	1	Georgetown University	3
Georgia University of America	1	George Washington University, The	34
Central Washington College of Education	4	Gettysburg College	1
University of Washington	1	Green College	1
University of Wisconsin	1	Hamilton College	1
University of New York	4	Hampden College	1
University of California	3	Harvard University	4
University of Michigan	1	Hebrew College	2
University of Texas	1	Holmes College	1
Dartmouth College	1	Holy Cross, College of	6

Harvard College	1	Providence College	1
Harvard University	1	Puerto Rico, University of	1
Hahn, University of	5	Rhode Island, University of	1
Harvard College	2	Rochester, University of	1
Johns Hopkins University	9	Rutgers University	1
Junata College	1	Saint John's University (Main.)	1
Kalamazoo College	1	Saint John's University (N.Y.)	1
Kent State University	1	San Fernando Valley State College	1
Kings College	1	San Francisco State College	1
Lafayette College	5	San Jose State College	1
Long Beach State College	1	Scranton University	1
Los Angeles City College	1	South, University of the	1
Los Angeles State College	1	Southern California, University of	1
Louisville, University of	1	Springfield College	1
Lycium College	1	Stanford University	1
Mahar, University of	2	Temple University	1
Marietta College	1	Trinity College (Conn.)	1
Maryland, University of	10	Trinity College (D.C.)	1
Massachusetts, University of	1	Tufts University	1
Miami, University of	1	Union College and University	1
Miami University	1	United States Military Academy	1
Michigan, University of	1	Utah State University of Agriculture	1
Michigan State University of	1	and Applied Science	1
Agriculture and Applied Science	1	Utah, University of	1
Middlebury College	1	Vermont, University of	1
Mississippi College	1	Villanova University	1
Missouri, University of	1	Virginia, University of	1
Montana State College	2	Wake Forest College	1
Moreau College	1	Washington University (Mo.)	4
Morris Harvey College	1	Washington and Jefferson College	1
Mount St. Mary's College	6	Washington and Lee University	1
Muhlenberg College	2	Washington State University	1
New Hampshire, University of	1	Washington, University of	1
New Mexico, University of	1	Waynesburg College	1
New York University	3	Wesleyan University	1
North Carolina, University of	1	West Virginia, University of	1
Northeastern State College	1	Western Reserve University	1
Notre Dame, University of	1	Whitworth College	1
Oberlin College	4	Whitworth College	1
Ohio Wesleyan University	4	William and Mary, College of	1
Olin State University	3	Wisconsin, University of	1
Oregon, University of	2	Worcester, College of	1
Pacific, College of the	3	Yale University	1
Pennsylvania State University	1	Yeshiva University	1
Pennsylvania, University of	5	Number of College Graduates	300
Piedmont, University of	3	Number of Colleges Represented	135
Princeton University	3		

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Administration Hospital



Learning Unit, St. Elizabeths Hospital



Children's Hospital



D. C. General Hospital



Fairfax Hospital



The George Washington University Hospital-Clinic Entrance

THE GEORGE WASHINGTON UNIVERSITY

Academic programs leading to degrees are offered in the following colleges and schools:

- Columbian College of Arts and Sciences: Associate in Arts (A.A.), Associate in Science (A.S.), Bachelor of Arts (A.B.), Bachelor of Science (B.S.), Bachelor of Science in Medical Technology (B.S. in Med. Tech.), Master of Arts (A.M.), Master of Fine Arts (M.F.A.), and Master of Science (M.S.)
- Graduate Council: Doctor of Philosophy (Ph.D.)
- School of Medicine: Doctor of Medicine (M.D.)
- National Law Center:
 - Law School: Bachelor of Laws (LL.B.)
 - Graduate School of Public Law: Master of Laws (LL.M.), Master of Comparative Law (M.Comp.L.), and Doctor of Juridical Science (S.J.D.)
- School of Engineering and Applied Science: Engineering Technologist Certificate (E.T.C.), Bachelor of Science (B.S.), Master of Science (M.S.), Master of Engineering Administration (M.E.A.), and Doctor of Science (D.Sc.)
- School of Education: Bachelor of Arts in Education (A.B. in Ed.), Bachelor of Science in Physical Education (B.S. in P.E.), Master of Arts in Education (A.M. in Ed.), Education Specialist (Ed.S.), Advanced Professional Certificate (A.P.C.), and Doctor of Education (Ed.D.)
- School of Government, Business, and International Affairs: Bachelor of Arts in Government (A.B. in Govt.), Bachelor of Business Administration (B.B.A.), Master of Arts in Government (A.M. in Govt.), Master of Business Administration (M.B.A.), Master of Public Administration (M.P.A.), Doctor of Business Administration (D.B.A.), and Doctor of Public Administration (D.P.A.)
- College of General Studies: Associate in Arts (A.A.), Associate in Science (A.S.), Associate in Secretarial Administration (A.Sec.Adm.), Bachelor of Arts (A.B.), Bachelor of Science in Cartography (B.S. in Cart.), Master of Arts (A.M.), Master of Arts in International Affairs (A.M. in I.A.), Master of Science in Business Administration (M.S. in B.A.), Master of International Affairs (M.I.A.), and Master of Science in Public Administration (M.S. in P.A.)

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- Schedule of Classes: Fall and Spring Semesters.....Registrar
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THE SUMMER SESSIONS, 1916

THE UNIVERSITY HOSPITAL, 1898

The
George
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Bulletin



THE SCHOOL OF ENGINEERING
AND APPLIED SCIENCE
1964-65

CORRESPONDENCE DIRECTORY

Detailed information may be obtained by addressing inquiries as indicated below. For any information not included here, please write to the Director of Admissions, The George Washington University, Washington, D. C. 20006.

Information concerning courses of instruction and the programs of the several colleges and schools will be found in separate issues of the University Bulletin, which are listed on the inside back cover.

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In Arts and Sciences	
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Doctor of Philosophy	Dean of The Graduate Council
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TESTING A SLENDER COLUMN

The
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Bulletin

THE SCHOOL OF ENGINEERING
AND APPLIED SCIENCE

1964-65

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UNIVERSITY OF
WASHINGTON

NUMBER 1

THE GEORGE WASHINGTON UNIVERSITY



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The Calendar 1964-65

FALL SEMESTER:

Placement tests: entering students	Sept 10	Thurs
Orientation Assembly: all new students	Sept 11	Fri
Curriculum Assemblies		
New full-time students	Sept 11	Fri
New part-time students	Sept 14	Mon
Advising: all students	Sept 14-16	Mon-Wed
Registration	Sept 17-19*	Thurs-Sat
Application for Feb graduation due in Registrar's Office		
Classes begin	Sept 21	Mon
Subjects of Master's theses of Feb candidates due		
Veterans Day (holiday)	Oct 2	Fri
Thanksgiving recess	Nov 11	Wed
D.Sc. dissertations of Feb candidates due	Nov 26-28	Thurs-Sat
Graduate Record Examination	Dec 1	Tues
Christmas recess	Dec 12	Sat
Classes resume	Dec 23-Jan 2	Wed-Sat
Master's theses of Feb candidates due	Jan 4	Mon
Last day of fall semester classes	Jan 4	Mon
Examination period	Jan 17	Wed
Jan 15-23		Fri-Sat
Jan 20		Wed
Inauguration (holiday)		

SPRING SEMESTER:

Advising: all students	Jan 25-27	Mon-Wed
Placement tests and waiver examinations	Jan 28	Mon
Registration	Jan 28-30*	Thurs-Sat
Application for June graduation due in Dean's Office		
Spring semester classes begin		
Subjects of Master's theses of June candidates due	Feb 1	Mon
Winter Convocation	Feb 5	Fri
Spring recess	Feb 22	Mon
D.Sc. dissertations of June candidates due	March 22-27	Mon-Sat
Master's theses of June candidates due	April 1	Thurs
Graduate Record Examination	April 5	Mon
Last day of spring semester classes	April 10	Sat
Examination period	May 19	Wed
May 24-29		Mon-Sat
Memorial Day (holiday)	May 31	Mon
Baccalaureate Service	June 6	Sun
Commencement	June 6	Sun

SUMMER SESSIONS†:

1964-65 REGISTRATION FOR FALL SEMESTER	Sept 16-18	Thurs-Sat
* Thursday and Friday from 12:00 to 8:00 P.M. Saturday from 1:00 A.M. to 1:00 P.M., Thompson Hall, 725 Twenty-third Street N.W.		
† Dates will be announced in the Calendar of the First Summer Sessions Catalogue, published in December 1964.		

The School of Engineering and Applied Science 1964-65

A Profile

The School of Engineering and Applied Science is a professional School in a University comprised of nine degree-granting schools and colleges.

The University is a private nonsectarian institution of higher education in the center of the Nation's Capital.

The School centers attention on the individual and his development towards a successful professional career.

Curricula emphasize theory, analysis, and design, for productive careers in modern science and engineering.

Imagination and creativity are fostered in an atmosphere that encourages the student to realize his full capabilities in accord with his interests.

The School

Every school has features that distinguish it from other schools and give it a distinctive character. These may be ivy covered halls, a particular strength of faculty in some area, a location, a student body with certain characteristics. It is necessary that a student know the character of the school before he can make an intelligent decision to undertake his educational development there.

The School of Engineering and Applied Science is a professional school in a University comprised of nine degree-granting schools and colleges. The University is the only private nonsectarian institution of higher education in the Nation's Capital. It is an urban institution in the center of the city. Its students live in the midst of the city's life with all its opportunities for cultural and intellectual development. In a very real sense college life is integrated into the pattern and culture of modern society, providing a most favorable environment for the development and maturing of the student to take his place in the world of today.

The School's purpose is the education of men and women for productive careers in engineering and applied science. We believe we have the function and responsibility to provide an environment and discipline that encourages and fosters development of the whole individual, with an understanding of the society he will serve as well as a high competence in science and technology. The engineer and the applied scientist work for the benefit of humanity; to do so well and responsibly requires that he comprehend the behavior of human beings in addition to the behavior of machines or materials.

The School recognizes the individual student as the single most important element in the educational process. Since individuals are distinctive, there can be no single educational formula or pattern by which the student may be led to professional competence. Therefore attention is centered on the individual, seeking that particular education that will encourage and assist him to his utmost effort in his development. The school provides opportunity for many educational experiences, and encourages him to explore many paths toward his goal. He is given much personal freedom, but freedom tempered with responsibility to accept the consequences of his actions and decisions and restrained by the ethics, practices, and rules of the profession he is preparing to enter.

We recognize the essential unity of science and technology, of engineering and applied science. In our curricula strong emphasis is placed on knowledge which is fundamental and has continuing application. Major attention is given to acquisition of competence in theory, analysis, and design, to the end that the individual possesses the means for translating his ideas into reality. Imagination and creativity are encouraged in preparation to personalization of technical detail. We aim to provide understanding and comprehension as preparation for a professional career. The demands of a professional career in engineering or applied science are exacting. We believe the student should be exposed to these demands in his preparation.

as a part of his learning process. He is encouraged to explore the limits of his capability, and is assisted when he makes mistakes. He learns by doing and by the correction of his errors and mistakes. He is never penalized for trying but he must try.

The atmosphere of the School is one of serious-minded effort toward mature development. Students work closely with faculty members and often develop very real friendships. The student body is close-knit and has a high sense of responsibility and loyalty to its individual members and to the School.

The student body numbers about 1,000, divided almost equally between graduates and undergraduates. Approximately half of the students come from throughout the nation and foreign countries. A substantial number of students are employed. A large part of the student body has a primary interest in research and development; the remainder look toward careers in design or in administration of scientific and engineering activities.

The objective toward which the School strives is to stimulate and assist the student to develop to the limit of his capability; to acquire understanding of the principles and practices of engineering and applied science; to develop skill in the application of his knowledge to serve the needs of mankind; and to have a sense of responsibility to society and his profession.

ACADEMIC STATUS

The George Washington University is accredited by its regional accrediting agency, the Middle States Association of Colleges and Secondary Schools.

The University is on the approved list of the American Association of University Women and is a member of the College Entrance Examination Board.

Those curricula of the School of Engineering and Applied Science which are within the purview of the Engineers' Council for Professional Development are accredited by that agency.

Undergraduate Study

The undergraduate program is intended to provide a solid foundation in the basic principles, concepts, and techniques underlying technology and applied science, on which the individual may build technical competence in a variety of areas as his professional career develops. It is in preparation for a career in engineering or applied science, as it exists today and as it may develop in the future.

Undergraduate study is the formal beginning of a life-long continuing program of education. The graduate, when he receives his Bachelor's degree, is prepared for productive work in his chosen field; he is also prepared for further development and progress, both formal and informal.

The School provides an environment that encourages and fosters the attitudes and disciplines essential to professional growth. Upon completion of the undergraduate program the student is prepared for immediate entry into professional activity or continuing study at the graduate level.

Admission indicates at least minimum preparation and the probable capacity to meet the unusual educational demands of this school. However, the nature of the approach requires real effort, intellectual discipline, and maturity. Because the school can predict neither the student's response to the demands made on him nor the program he should follow for his most effective development, it has designed an undergraduate program that offers a variety of experiences through which the student may find his own best path to maturity and growth in educational development.

In the fields of engineering and applied science there is no substitute for demonstrated ability and competence by the correct solution of problems. Achievement in a particular course of study, while important, is less pertinent than the ability to analyze and interpret all the aspects of a problem, formulate solutions, and evaluate the solutions in the light of all available information. The undergraduate program provides a periodic evaluation and appraisal of the student's ability.

Engineers and applied scientists are involved with the conquest of nature for the benefit of mankind, as well as with the development and accumulation of knowledge. They live and do their work in the real-life environment of the moment, and what they do for humanity is dictated in large part by the needs and desires of man for security and comfort. Thus they must have a strong sense of morality, a high concern for the progressive well-being of mankind, and an intimate knowledge of the study courses in the humanities, to the extent necessary to develop a reasonable understanding and appreciation of these areas of knowledge. Cultivation in the intricacies of society and comprehension of human values are sought for the student, in complement to his scientific and technical literacy.

The School is a place for learning; for experiencing adventures of the mind and of the hands; for the formulation, exchange, and exploration of ideas. During his undergraduate years the student is led to strengthen his skills in analysis and his talent for creative activity, through liberal use of project-type laboratory work. Independent thought and original ideas receive higher evaluation, in the appraisal of student achievements, than the rote recital of information.

THE CURRICULA

Undergraduate curricula at the School have a three-level form—the Introductory Level, the Intermediate Level, and the Advanced Level. Progression from one level to the next requires a certain number of semester hours of formal study and a satisfactory demonstration, through the medium of a comprehensive evaluation, of ability to use the knowledge gained through study and the intellectual powers developed.

In general, study at the Introductory and Intermediate levels serves the purpose of acquisition and development of the broad base of information, skills, and attitudes on which the concentration of study at the Advanced Level will be founded. There is no formal specification of courses to be undertaken at the Introductory or Intermediate level; the concentration of study at the Advanced Level is specified and is related to a particular degree designation.

All undergraduate curricula lead to the degree of Bachelor of Science, with parenthetical designation of a particular area of concentration. For example: Bachelor of Science (Electronics); Bachelor of Science (Theoretical and Applied Mechanics); Bachelor of Science (Mechanical Engineering).

A minimum total of 140 semester hours is required to qualify for the degree.

Degrees are offered in the following areas:

Civil Engineering	Engineering Science
Communications	Machine Computers
Control Systems	Measurement Science
Electrical Engineering	Mechanical Engineering
Electronics	Structures
Energy Conversion	Theoretical and Applied Mechanics

Introductory Level

The student entering the School with high school preparation starts his professional studies at the Introductory Level. His choice of courses is governed by his needs for preparation in the areas of knowledge included in the intermediate comprehensive evaluation and by his interests. There is no rigid specification of courses. The difference in semester hours between the number necessary for preparation and the approximate number required (70) is available to the student for elective study in any subjects he chooses.

Thus the student can choose the most effective (for him) of several paths to the Intermediate Level, can make full use of advanced placement opportunities, proceed at his own best pace, and have experiences to assist him in formulating his ultimate educational objective.

The student is assisted in this task by his faculty adviser, who must approve his program each semester, prior to registration. For the guidance of the student and his faculty adviser, every beginning student completes the School's placement examinations in English, Reading, Algebra, and Trigonometry. The student is required to undertake remedial work in any of these areas in which he is deficient as determined by the standards of the School, prior to enrollment in courses in the area of deficiency.

The following curriculum illustrates one of several feasible combinations of courses that might be selected.

FIRST SEMESTER

	Semester Hours
Ap S 4	3
Math 27	6
Physics 11	3
Elective	3

SECOND SEMESTER

Ap S 8	3
Physics 14	3
Math 28	6
Elective	3

THIRD SEMESTER

Ap S 5	3
Ap S 59	5
Math 111	3
Physics 15	3
Chem 13	4

FOURTH SEMESTER

Ap S 6	3
Ap S 60	5
Math 112	3
Physics 16	3
Chem 14	4
Intermediate Comprehensive Evaluation	0

The work of the introductory level may be undertaken in this School or any other accredited institution of college level, and may consist of courses in any subjects acceptable for degree credit in the institution in which they are completed; except courses in Physical Education, Secretarial Studies, or remedial subjects. The courses taken should prepare the student for the intermediate comprehensive evaluation.

INTERMEDIATE COMPREHENSIVE EVALUATION

Introductory Level study is terminated by the intermediate comprehensive evaluation, the completion of which is required for entry into further study at the Intermediate Level. The evaluation includes a written part which is similar in nature and content to the Fundamentals Section of the examinations for professional registration, an oral interview with a group of three faculty members, and a review of formal course achievement.

The areas included in the evaluation serve as a guide to students in arranging their programs of study. The content and level of the evaluation are indicated by the context of the entire evaluation rather than by the statements under any one item. The evaluation appraises the student's ability to integrate and use his knowledge as well as the extent and quality of his information.

The areas included in the evaluation and suggested courses which the student may choose to undertake as preparation are:

ANALYSIS—logic and method in analysis (ApS 4, ApS 58, Phil 121-22)
COMMUNICATION—correct use of English, spelling, composition, sketching, descriptive geometry, use of graphic aids, interpretation of drawings (Engl 1-2, ApS 3)

CHEMISTRY—introductory general chemistry (Chem 13-14)

MATHEMATICS—including analytic geometry, differential and integral calculus, ordinary and partial differential equations, finite series, complex variables, vector analysis, and finite mathematics (ApS 5-6, Math 27, 28, 111, 112)

PHYSICS—introductory general physics including molecular structure of matter and atomic physics (Physics II, 14, 15, 16, 113, 114, 116)

STATISTICS—principles and methods of statistics (ApS 5-6, ApS 107, Stat 91)

HUMANITIES AND SOCIAL SCIENCES—(the evaluation will require a critical essay in the area.)

The faculty evaluation is based on the written material, the oral interview, and the student's achievement record in course work. Students whose course achievement is high may be excused from the written part of the evaluation. *NO GRADE IS ASSIGNED ON THE EVALUATION.* The evaluating faculty report their appraisal as "Satisfactory" or "Deficient." In the latter case they recommend the remedial actions to be taken and may require reevaluation at a later time or permit the student to enter the Intermediate Level.

Intermediate Level

A student enters the Intermediate Level by presenting approximately 70 hours of course work in any subjects and an intermediate comprehensive evaluation. He is admitted to Intermediate Level study by favorable decision of the faculty group which appraises the student's qualifications to proceed with study, as shown by both his course record and the evaluation. A minimum of 60 hours of course work must be presented. The comprehensive evaluation must be taken in the School of Engineering and Applied Science.

The curriculum in the Intermediate Level is determined, as in the Introductory Level, by the student's needs in preparation for the advanced comprehensive evaluation and by his interests. There is no specification of required courses.

At this level it is desirable for the student to anticipate, in his selections of courses, the area of concentration he intends to enter at the Advanced Level. While he continues to build foundation knowledge at this level, there is opportunity to expand the foundation in some areas in preparation for later concentration. The student is advised to plan his program at this level carefully, with the advice and assistance of his faculty adviser. At this level the student bears the entire responsibility for his study program; faculty approval is not required, but the professional advice and counsel of the student's adviser are available on request.

The following curriculum illustrates one of a number of combinations of courses that might be selected as a study program at the Intermediate Level (fifth and sixth semesters). The areas included in the advanced comprehensive evaluation serve as a guide to the student in planning his program at the Intermediate Level.

FIFTH SEMESTER		Semester Hours
Ap S 10	General Field Theory.....	3
Ap S 29	General Network Theory I.....	3
Ap S 63	Fluid Mechanics I.....	3
Ap S 85	Thermodynamics.....	4
Ap S 101	Materials Science I.....	4
Ap S 105	Fundamentals of Measurement Science I.....	4

SIXTH SEMESTER

	Semester Hours
Ap S 11	3
Ap S 30	3
Ap S 64	3
Ap S 102	3
Ap S 106	4
Ap S 110	4
Advanced Comprehensive Evaluation	3
	0

ADVANCED COMPREHENSIVE EVALUATION

Intermediate Level study is terminated by the advanced comprehensive evaluation, the completion of which is required for entry into further study at the Advanced Level. The evaluation includes a written part which is similar to portions of the examinations for professional registration, an oral interview with three faculty members, and review of the student's achievement in course work. The content and level of the evaluation material are indicated by the context of the entire evaluation rather than by the statements under any one item. The evaluation appraises the qualification of the student to proceed productively in a chosen area of concentration, and will include some material related specifically to particular areas of concentration.

The areas included in the evaluation and suggested courses the student may choose to undertake as preparation are:

ANALYTICAL MECHANICS—mechanics of rigid and deformable bodies, including solids and fluids (ApS 59-60, 62, 63, 64, 65)

FIELD AND WAVE THEORY—basic theory and analysis of fields (electric, magnetic, potential, vector, etc.) and of wave motion (ApS 10, 11, 12, 63-64)

HUMANITIES AND SOCIAL SCIENCES—(The evaluation will require a substantial essay in a specific area.)

MANAGEMENT SCIENCE—basic concepts and methods of management science, elementary operations research and analysis (ApS 110, 111)

MATERIALS—structure of materials, behavior as related to structure, principles of control of material properties, quantum physics aspects (ApS 101-2, Phys 116)

METROLOGY—standards, measurement principles, error, design of experiments, standard devices, and procedures in measurement (ApS 105-6, 107)

NETWORK THEORY—basic theory and analysis of networks and elements of network synthesis (ApS 29-30, 32, 55)

THERMODYNAMICS AND ENERGY CONVERSION—fundamental concepts and theory; electrical, mechanical, thermal, and chemical energy conversion systems (ApS 77, 78, 130)

The faculty evaluation is based on the written material, the oral interview, and the student's achievement in course work. Students whose course achievement is high may be excused from the written material. **NO GRADE IS ASSIGNED ON THE EVALUATION.** The faculty appraisal is reported as "Satisfactory" or "Deficient."

In the latter case they recommend the remedial actions to be taken and either may require reevaluation or permit the student to enter the Advanced Level.

Advanced Level

A student enters the Advanced Level by presenting not less than 90 hours of course work in any subjects and an advanced comprehensive evaluation. He is admitted to Advanced Level study by favorable decision of the faculty group which appraises the student's qualifications to proceed with study in the area of concentration, as shown by both his course record and the evaluation.

Advanced Level study provides for concentration in a specific area of engineering or applied science. The curriculum (study program) is defined in detail and determines the parenthetical degree designation. Although the required courses are specified, reasonable variation from the specification is possible to accommodate particular interests and needs of the student, especially when these relate to newly developed or frontier areas or when the student has completed any of the required courses during his earlier preparation.

In contrast to study at the lower levels, study at the Advanced Level has a strong component of design and application, to give the student experience in the creative work that is the distinguishing characteristic of engineering and applied science.

All curricula at the Advanced Level include specified course work, and choose to complete the total of 140 semester hours required to qualify for degree consideration. The specified curricula at the Advanced Level follow.

CIVIL ENGINEERING

Civil engineering is the broad branch of engineering most closely related to daily human activities. Study in this area prepares for careers in the design of buildings, bridges, aircraft and missile frames, tunnels, and dams; the planning of cities; and for research on new types of structures, new materials, and new methods of construction.

The concentration of study outlined below provides the essentials for beginning a career upon graduation, for registration as a professional civil engineer as required by law, and for continuing study at the graduate level.

REQUIRED COURSES		Semester Hours
Ap S 62	Soil Mechanics	3
Ap S 70	Earth Science	3
Ap S 121-22	Structural Theory I-II	8
Engr 1	Engineering Planning and Economics	3
Engr 2	Regional and Urban Planning	3
Engr 10	Hydraulic Engineering	6
Engr 11-12	Structural Design I-II	6
Engr 13-14	Structural Laboratory I-II	

COMMUNICATIONS

Study in this area prepares for careers in telephone, radio, and wire communications; space and satellite communications; rocket control and guidance; high frequency communications such as microwaves; and other forms of communication using vacuum tubes, transistors, light amplifiers and similar devices. Communication theory and system design are emphasized. The graduate may choose to enter research and development in the design of new methods of communication or the design, construction, and operation of communications systems.

The study outlined below provides the essentials for beginning a career upon graduation and the base for further study at the graduate level.

REQUIRED COURSES

	Semester Hours
Network Analysis	3
Information Theory	3
Control Theory	3
Analysis Methods	3
Engineering Electronics I-II.....	6
Introductory Transducers and Instrumentation.....	3
Advanced Transducers and Instrumentation.....	3
Communications Laboratory I-II.....	6
Electronics Laboratory I-II.....	6

CONTROL SYSTEMS

Control systems is a new, rapidly developing branch of technology which provides the technical means for automation and automatic control of devices, machinery, manufacturing processes, and a variety of tasks and operations. The study outlined is preparation for such activities as: design and construction of systems for space missile guidance and control, the control of nuclear reactors and atomic energy systems; automatic control of radar search devices; design of automatic machinery of all types; and the design and operation of electronic mechanisms for automatic control. The use of machine computers in control systems is emphasized.

The graduate is prepared to undertake analysis and design of control systems, to carry on research on automatic control, and to continue further study at the graduate level.

REQUIRED COURSES

	Semester Hours
Network Analysis	3
Information Theory	3
Control Theory	3
System Dynamics I-II.....	6
Digital Circuitry and Systems.....	3
Application of Computers to Engineering Problems.....	3
Digital Techniques	3
Introductory Transducers and Instrumentation.....	3
Advanced Transducers and Instrumentation.....	3
Control Laboratory I-II.....	6

ELECTRICAL ENGINEERING

Electrical engineering is one of the traditional broad branches of engineering, and is primarily concerned with the uses of electrical energy in various forms. The study outlined is preparation for such activities as: analysis and design of electric power generating plants, power transmission systems, and electrical appliances; the design and application of motors, generators, and transformers; the design of electrical instruments and their use in measurement; and the design of the electrical equipment of buildings, factories, ships, aircraft, missile and rocket test and launching sites.

The study outlined provides the essentials for beginning the practice of electrical engineering (including registration as a professional electrical engineer as required

by law), for continuing graduate study in any of the many specialties of electrical engineering, and for undertaking research in electrical engineering. The concentration provides a broad insight into the most common areas of electrical engineering, preparation for immediate careers in this area, and a sound base for graduate study.

REQUIRED COURSES

	Semester Hours
Ap S 32	3
Ap S 130	3
Engr 19-20	6
Engr 21	3
Engr 49-50	6
Engr 105-6	6
Engr 109-10	6
Network Analysis	3
Electrical Energy Conversion	6
Engineering Electronics I-II	3
Application of Computers to Engineering Problems	6
Precise Electrical Measurements I-II	6
Electrical Engineering Laboratory I-II	6
Energy Conversion Laboratory I-II	6

ELECTRONICS

Electronics involves the use and control of very small amounts of electrical energy to manipulate and operate devices designed to extend and complement human nerves and brains. The study outlined is preparation for such activities as: design and use of electronic instruments in radio, telephone, facsimile, and television systems; in devices to control industrial machinery, and in computers; the design and application of transistor and solid-state circuits; the design of radar and navigation devices and systems; and the application of electronics in other branches of science and in medicine.

The graduate is prepared to undertake design, to engage in research and development of new applications of electronics, and to continue in graduate study.

REQUIRED COURSES

	Semester Hours
Ap S 32	3
Ap S 55	3
Engr 19-20	6
Engr 31	3
Engr 49-50	6
Engr 52	3
Engr 53	3
Engr 107-8	6
Network Analysis	3
Control Theory	6
Engineering Electronics I-II	3
Application of Computers to Engineering Problems	6
Precise Electrical Measurements I-II	3
Introductory Transducers and Instrumentation	3
Advanced Transducers and Instrumentation	6
Electronics Laboratory I-II	6

ENERGY CONVERSION

Energy conversion is concerned with the development and application of energy sources. The study outlined is preparation for such activities as: research on new energy sources (such as: fuel cells, biological processes, and solar batteries); development and design of energy sources employing thermionics, thermoelectricity, direct chemical conversion, photovoltaic processes, and biological processes; design and application of fuel cells, thermionic converters, electrical and electromechanical machines.

Energy conversion is a new and rapidly growing area, offering unusual opportunity. The graduate will find most opportunity in research and development, and in application of new energy sources. The study program provides preparation for such careers and for continuing graduate study.

REQUIRED COURSES

	Semester Hours
Ap S 86	Energy Conversion
Ap S 87	Heat Transfer Theory
Ap S 130	Electrical Energy Conversion
Engr 30	Applied Thermodynamics
Engr 81-82	Thermal Power I-II
Engr 85	Fluid Machinery
Engr 109-10	Energy Conversion Laboratory I-II
Engr 111-12	Mechanical Engineering Laboratory I-II

ENGINEERING SCIENCE

Engineering science is a broad area of fundamental knowledge of engineering principles, concepts, and techniques underlying all of technology. The study outlined prepares for careers in research and development of new devices and techniques for use in scientific exploration of the oceans, space, the atmosphere, and the earth; the design and construction of devices for use in medical, biological, physical, and chemical research; the design and use of new materials, structures, and machines for control of nature; and research to improve engineering devices and methods.

The graduate of this program is most likely to engage in research and development or in graduate study through the doctoral level.

REQUIRED COURSES

	Semester Hours
Ap S 32	Network Analysis
Ap S 35	Control Theory
Ap S 58	Analysis Methods
Ap S 62-64	Fluid Mechanics I-II
Ap S 65-66	System Dynamics I-II
Ap S 87	Heat Transfer Theory
Engr 19-20	Engineering Electronics I-II
Engr 21	Application of Computers to Engineering Problems

MACHINE COMPUTERS

Machine computers are finding wide application in many scientific and engineering applications as well as in business and industry. Their greatest development and application are yet to come. The study outlined is preparation for such activities as mathematical (logic) and electronic design of computers; programming; coding; electronic design of circuits employing transistors and other solid-state devices; design and computer logic; the use of computers in medical research in computer design and applications; development of computer solutions to management, business, and industrial problems; and the design of computers for use in control systems.

The graduate will find many opportunities in industry, business, research, and education. The study program provides preparation for these careers and a broad base for further specialization in graduate study.

REQUIRED COURSES

	Semester Hours
Ap S 32	Network Analysis
Ap S 58	Information Theory
Ap S 75	Digital Circuitry and Systems
Engr 19-20	Engineering Electronics I-II
Engr 21	Application of Computers to Engineering Problems
Engr 22	Digital Technology
Engr 23-24	Computer Laboratory I-II
Engr 107-8	Electronics Laboratory I-II

MEASUREMENT SCIENCE

Measurement science concerns the design, construction, and use of instruments in measurement, and the design of experiments. The study outlined below is preparation for such activities as testing of rockets, missiles, and space vehicles; measurements of the characteristics and properties of materials; determination of standards of measurement in light, heat, optics, electricity, etc.; research in measurement methods and techniques in various fields of science and in medicine; design and construction of measuring instruments; design and execution of experiments and tests of various kinds; and control of quality of manufactured products.

The graduate will find many opportunities in space research, industry, manufacturing, and research. Opportunities are especially good in the design and application of instruments.

REQUIRED COURSES

Ap S 35
Engr 19-20
Engr 49-50
Engr 52
Engr 53
Engr 54
Engr 55
Engr 56

Control Theory
Engineering Electronics I-II.....
Precise Electrical Measurements I-II.....
Introductory Transducers and Instrumentation.....
Advanced Transducers and Instrumentation.....
Precise Mechanical Measurements.....
Precise Heat Measurements.....
Pressure Measurements

Semester
Hours3
6
6
3
3
4
4
3

MECHANICAL ENGINEERING

Mechanical engineering is the broad branch of engineering concerning machinery, equipment, and other power devices; particularly in manufacturing and industry. The study outlined below is preparation for such activities as design of power generating equipment and plants (viz: jet engines, gas turbines, steam boilers, etc.); design and construction of aircraft, missiles, automobiles, and ships; manufacture of machines and goods; design of mechanical equipment (heating, air-conditioning, automatic machinery, nuclear reactor controls) and research to develop new kinds of power machinery.

The graduate will find many opportunities in manufacturing, in design, and in research. The preparation is adequate for beginning the practice of mechanical engineering, and provides the essential knowledge needed in registration as required by law for practice as a professional mechanical engineer.

Careers in research in mechanical engineering should include additional study at the graduate level.

REQUIRED COURSES

Ap S 35
Ap S 65-66
Ap S 87
Engr 21
Engr 30
Engr 31-32
Engr 35
Engr 111-12

Control Theory
System Dynamics I-II.....
Heat Transfer Theory.....
Application of Computers to Engineering Problems.....
Applied Thermodynamics
Thermal Power I-II.....
Fluid Machinery
Mechanical Engineering Laboratory I-II.....

Semester
Hours3
6
3
3
3
6
3
6

STRUCTURES

The structures expert is concerned with the analysis and design of structures to satisfy functional requirements and withstand the forces acting. The study outlined is preparation for such activities as design of skyscrapers, tunnels, dams, missile silos and landing sites, powerhouses, bridges, and aircraft frames; the development of new types of structures (such as structures for outer space, missiles, orbiting satellites); the use of new materials in structures; analysis of structure behavior in earthquakes; and research on structural design.

The graduate will engage chiefly in analysis and design or in research. The study program provides the essential knowledge for registration required by law to practice as a professional structural engineer, for engaging in research, and for further specialization in graduate study.

REQUIRED COURSES

	Semester Hours
Soil Mechanics.....	3
Deformable Body Mechanics.....	3
Statistical Theory I-II.....	8
Engineering Planning and Economics.....	3
Structural Design I-II.....	6
Structural Laboratory I-II.....	6
Structural Dynamics.....	3
Application of Computers to Engineering Problems.....	3

THEORETICAL AND APPLIED MECHANICS

Theoretical and applied mechanics is concerned with the behavior of matter when exposed to forces. The study outlined is preparation for such activities as: prediction and measurement of blast effects of bombs on buildings; analysis of behavior of missiles re-entering the atmosphere; development of theory defining behavior of materials; mathematical analysis; study of behavior of fluids; and applications of mechanics to celestial and space bodies.

The graduate will find most opportunity in research, particularly in regard to materials and structures; and should plan further study at the graduate level.

REQUIRED COURSES

	Semester Hours
Soil Mechanics.....	3
Fluid Mechanics I-II.....	6
System Dynamics I-II.....	6
Deformable Body Mechanics.....	3
Introductory Astronomy.....	3
Heat Transfer Theory.....	3
Undergraduate Research.....	3

Admission to Undergraduate Study

THE PURPOSE OF ADMISSION

It is the purpose of the School to admit for study those persons who can benefit themselves and society by disciplined intellectual effort in its environment. The School has a responsibility to admit those whose prospect for successful and rewarding achievement justifies the opportunity to study and whose objectives can be satisfied with the resources the School offers. The School admits as many students meeting these criteria as its resources permit.

Admission requirements are stated in terms of the minimum qualifications establishing a favorable prospect for successful completion of the curricula. In fairness to those presenting a lower level of qualification the School may deny admission when, in the judgment of the School, the prospect for success of the student is questionable.

Admission to the School of Engineering and Applied Science is the first substantial step of a long series of qualifying tests the student will take in progression toward professional competence and status, and indicates the School's belief that the applicant has at least the minimum preparation and ability to complete the curriculum successfully.

CRITERIA FOR ADMISSION

The applicant for undergraduate admission must be of good character and must have an academic background appropriate for the program of studies contemplated.

Consideration for admission is based upon the combined evidence of the following factors:

1. An acceptable certificate of graduation from an accredited high school showing at least fifteen units*;
2. The principal's statement that the applicant is prepared to undertake college work;
3. Scores on the following College Entrance Examination Board tests: the Scholastic Aptitude Test, the English Composition Achievement Test, and a Mathematics Achievement Test. If the applicant studied trigonometry in high school he should take the Advanced Mathematics Achievement Test; if he did not study trigonometry in high school he should take the Intermediate Mathematics Achievement Test.
4. Evidence from the high school grades that the applicant can achieve satisfactorily in formal study;
5. Evidence in reference letters, requested by the applicant, as to the applicant's motivation toward engineering and applied science, and his seriousness of purpose.

The qualifications of applicants who, because of unusual circumstances, do not meet the above requirements will be considered by the School, which may prescribe admission tests.

* A unit represents a year's study in a secondary school subject, including in the aggregate not less than 120 sixty-minute periods of prepared classroom work.

Nine and one-half of the fifteen units required for entrance must be distributed as follows: three in English, two in algebra, one in plane geometry, one-half in plane trigonometry, one in physics or chemistry, and two in one foreign language or history. General science may not be counted in satisfaction of the science requirement but may be counted as an elective unit.

It is recommended that both physics and chemistry be studied in high school. Study of these sciences contributes to the student's general education, aids in his choice of a career, and affords a qualitative measure of his ability and potential for study of engineering or science. Superior students are encouraged to begin collegiate study at the highest level consistent with their preparation, by the use of waiver examinations.

The study of solid geometry is recommended, in order that the student may have a firm foundation for his collegiate studies in mathematics.

Quantitative Deficiency.—A graduate of an approved high school who does not differ for admission the particular subjects required, but who does present not less than fifteen acceptable units, may be admitted to pursue a prescribed program of studies including courses to make up for deficiencies if the deficiency in distribution does not exceed two units.

PROCEDURE

An applicant for admission obtains from the Office of the Director of Admissions of the University an application blank which he must fill out completely and return with the \$15 application fee. A recent photograph, with signature, of the applicant must be attached to the blank.

Applications, together with all required credentials, should be filed not later than July 1 for the fall semester, January 1 for the spring semester, and May 1 for the Summer Sessions. No application will be considered after September 1 for the fall semester, January 10 for the spring semester, or June 1 for the Summer Sessions except in extraordinary circumstances, at the discretion of the Director of Admissions.

An applicant from a secondary school sends the high school record form provided by the University to his high school principal with the request that the principal fill out the form and mail it directly to the Office of the Director of Admissions.

The prospective student from a secondary school requests the College Entrance Examination Board to send to the Office of the Director of Admissions the scores of all Entrance Examination Board Scholastic Aptitude tests and Achievement tests made with the Educational Testing Service, 20 Nassau Street, Princeton, New Jersey. Arrangement for tests is the responsibility of the applicant and should be made with the Educational Testing Service, 20 Nassau Street, Princeton, New Jersey, not less than one month before the date of the test. On the application for the test, the student should specify that the scores be sent to the Director of Admissions, The George Washington University, Washington, D. C. 20006.

A prospective student who has previously attended one or more institutions of higher learning must request each registrar to mail directly to the Office of the Director of Admissions a transcript of his record, even though credits were not earned.

READMISSION

A student previously registered in the University who was not registered on campus during the immediately preceding semester must apply for readmission in the Office of Admissions (time stated above) in advance of registration. If the student applies as a degree candidate and was previously registered as a nondegree student, or if he has attended one or more higher institutions during his absence from the University, he must have complete, official transcripts sent to the Office of the Director of Admissions from each institution attended before his application will be considered. Applications for readmission are considered on the basis of regulations currently effective.

ADVANCED STANDING

CREDIT FOR ADVANCED PLACEMENT EXAMINATIONS

Advanced standing may be granted for study at the collegiate level in advanced courses in an approved secondary school, if substantiated by satisfactory performance in the Advanced College Placement Examination. Arrangement for the examination is the responsibility of the applicant and should be made with the College Board Advanced Placement Examinations, Educational Testing Service, 20 Nassau Street, Princeton, New Jersey, or Box 27896, Los Angeles, California.

The applicant must request the examining service to submit the test papers and scores to the Office of Admissions. Consideration is given to both the quality of performance on the examination and the quality and content of the course of study completed by the applicant. Credit may be withheld pending satisfactory completion of higher-level courses in the same field.

Total credit that may be so granted is ordinarily limited to 15 semester hours, not more than 8 semester hours of which may be in any one examination area. In exceptional cases these limits may be exceeded, but in no case will the credit granted exceed 30 semester hours.

CREDIT FROM HIGHER INSTITUTIONS

Advanced standing may be granted for work successfully completed at accredited institutions of higher learning. Credit will be granted for transferred work only when it meets the requirements for the degree sought at this University, and subject to the general University regulations concerning satisfactory subsequent work. Work of low pass grade (*D* or the equivalent) will not be considered for transfer.

SERVICE SCHOOL CREDITS

A limited amount of credit earned in service schools since 1941 may be considered for assignment to qualified degree candidates in the School of Engineering and Applied Science. Veterans should submit to the Director of Admissions photostatic copies of their service school records, indicating courses successfully completed with sufficient identification of the course to locate it in the Guide of Evaluation of Educational Experience in the Armed Forces.

Advisory System

The School of Engineering and Applied Science encourages a close Faculty-student relationship. Every entering undergraduate student is assigned a permanent Faculty adviser to assist him to orient himself in the professional discipline. Faculty advisers counsel students on their programs of study, the achievement and maintenance of satisfactory scholastic performance, professional development, and extracurricular activity as part of the educational process. The adviser represents the student in all cases requiring Faculty action.

Students in the Introductory Level must obtain their advisers' approval of programs of study prior to registration.

Until a student has completed the work of the Introductory Level he must follow the recommendations of his adviser in all academic matters. However, an adviser may not deny a student entry into any course or activity to which he is entitled under the regulations of the School. Students in the Intermediate and Advanced Levels are encouraged to consult their advisers. The Dean acts as temporary adviser to entering or transfer students pending assignment of their permanent advisers.

All students are encouraged to discuss college problems with their advisers or instructors at any time; and parents or guardians are invited to consult with the Dean and advisers, concerning any student problems.

Faculty advisers discharge their counseling duties in accordance with the high principles of their professional responsibility; however, the final responsibility for a student's action lies wholly with the student.

Graduate Study

Graduate study is rapidly becoming a necessity for the engineer or applied scientist. Tomorrow's leaders are developing today the increased knowledge and capability demanded by the accelerating pace of advance in engineering, science, and administration. Industry eagerly seeks those with advanced knowledge, analytical skill, and ability.

The School of Engineering and Applied Science offers graduate study leading to the degrees of Master of Science, Master of Engineering Administration, and Doctor of Science.

In the graduate programs as in the undergraduate study, the educational philosophy of the School is to increase the knowledge and understanding of the individual student by concentration on principles and their application rather than by encyclopedic coverage of techniques and specialized detail. Each program is individually planned according to the student's preparation and needs. Included are courses in his major area and related fields.

Graduate study may be undertaken in any field of engineering or applied science in which a scientific discipline exists and in which the School has adequate facilities and resources. The student also may select courses in other departments of instruction of the University in order to serve specific needs or objectives.

THE MASTER'S PROGRAMS

The Degree of Master of Science

The objective of this discipline is a substantial comprehension of principles and methods for their use, as applied in modern technology. Increased understanding and its use in solving engineering problems are sought, rather than a breadth of familiarity with applications and techniques.

The student's program may provide for broad coverage in a variety of fields or may be designed to give some degree of specialization in a particular area, as determined by conference at the time of admission to candidacy. The specialization available is indicated by the courses of instruction (see pages 56-59, 61-64).

The level of the courses ordinarily requires as prerequisite the satisfactory completion of at least one undergraduate course in mathematics beyond the first course in ordinary differential equations and at least one in the area of the graduate course to be undertaken.

The Degree of Master of Engineering Administration

The objective of this discipline is to develop an understanding of the principles and a competence in the practices of administration as applied to engineering and scientific activities. Knowledge and understanding are sought rather than mere familiarity with techniques.

A study program is prescribed for each candidate; programs are integrated sequences of courses. This program is for engineers and scientists who have or anticipate responsibility for administration of engineering or scientific activities. Analysis, case study, and quantitative approaches are emphasized in addition to the technical theories of administration.

In addition to the requirements for admission to graduate study stated below, the applicant must have an adequate knowledge of the principles of human relations, the fundamentals of accounting, and the fundamentals of statistics. This requirement can be met by the successful completion of the following undergraduate courses or an approved equivalent: Psychology 145 *Principles of Human Relations*, Accounting 115 *Survey of Accounting*, and Statistics 107 *Statistics for Engineers*. The student should have a working command of calculus.

ADMISSION TO GRADUATE STUDY

Admission to graduate study toward a Master's degree requires a Bachelor's degree from a recognized institution and evidence of capacity for productive work in the field selected.

Applicants who have significant deficiencies in their preparation may qualify for admission to graduate study by taking prescribed undergraduate courses. In some cases such study may be carried on in addition to a limited graduate program. In no case may the undergraduate courses fulfill any part of the requirements for the graduate degree. Admission to graduate study does not admit the student to degree candidacy.

ADMISSION TO MASTER'S CANDIDACY

Application for admission to candidacy for a Master's degree must be made in writing to the Dean. To be accepted the applicant must have (1) been accepted for graduate study, (2) satisfactorily completed 9 semester hours of graduate courses, and (3) give evidence of satisfactory personal and intellectual qualifications. In exceptional cases the requirement of 9 semester hours of graduate courses may be reduced.

ADVANCED STANDING

Graduate courses completed before admission to graduate study toward a Master's degree are not transferable for degree credit. They may, however, be considered in planning individual programs. Course work to satisfy degree requirements in another school or college of the University may not be applied toward a degree in the School of Engineering and Applied Science.

REQUIREMENTS FOR THE DEGREE

The basic requirement for the degree is the satisfactory completion of the comprehensive examination.

RESIDENCE

The candidate must complete a minimum of one year of full-time study, or the equivalent in part-time study, in the School. A full-time student must complete all requirements for the degree within three years; a part-time student, within five years.

SCHOLARSHIP

A minimum grade of "Satisfactory" is required in all courses. A student who makes one grade of "Unsatisfactory" may repeat the course once. A student who receives two or more grades of "Unsatisfactory" will not be permitted to enroll further in the School until he demonstrates by examination, or as may be directed, that his deficiencies in course work have been removed. A minimum grade of B or better is required for undergraduate courses taken to remove deficiencies in preparation for graduate study.

PROGRAM

A minimum of 24 semester hours of graduate courses and the thesis (6 semester hours) is required. Each program is worked out with an adviser to meet the needs of the individual student.

MASTER'S THESIS

The degree candidate must submit an acceptable thesis to demonstrate his ability to make independent use of the knowledge and discipline of thought acquired and developed by graduate study, to furnish objective evidence of constructive power in a given field, and to demonstrate that he can communicate the results of his work in writing. Work of a suitable character for which the student has professional responsibility may be considered, whether done on or off campus, provided no significant amount of work is completed without faculty supervision.

The thesis is the exclusive responsibility of the student. He may consult an adviser, but the adviser assumes no responsibility for the thesis.

The acceptability of the thesis is determined exclusively by the final comprehensive examination committee.

The candidate must submit his thesis subject to the Dean by the stated date for the semester in which he enrolls in the first thesis course (Ap S 299, or E 299, or EA 299). He must submit his thesis in final form to the Dean by the stated date for the semester in which he enrolls in the second thesis course (Ap S 300, or E 300, or EA 300), except that in every case the final thesis must be submitted prior to the expiration of one calendar year from the date of submission of the thesis title. In case of failure to submit the final thesis as specified above, the student's candidacy and graduate study are terminated.

Candidates may enroll in the thesis course (299-300) one time.

A thesis may be submitted in final form one time. If the thesis is unacceptable to the final comprehensive examination committee the student's candidacy and graduate study are terminated.

COMPREHENSIVE EXAMINATION

The student must pass a comprehensive examination, written, oral, or both as prescribed by the faculty, to demonstrate substantial understanding of principles and methods of their use in the area of his interest. This examination will not be taken until the candidate has successfully completed the prescribed program of study and submitted a Master's thesis. The candidate must successfully complete the final comprehensive examination, which is the basic requirement for award of the degree on his first attempt. In the event of failure the student's candidacy and graduate study status are terminated.

THE DOCTORAL PROGRAM

The School of Engineering and Applied Science offers a program of advanced study and research leading to the degree of Doctor of Science. This program is limited to recognized fields in engineering or applied science in which a scientific discipline exists and for which the University has adequate resources.

The Doctoral discipline is designed to prepare the student for a career of creative scholarship by providing a broad background of knowledge and an understanding of research methods. It requires study of interrelated fields of learning as well as original research in the field of central interest.

The discipline for the degree is divided into two stages. The first—made up of a study of interrelated fields of learning which support the general area of research concentration—culminates in the qualifying examination. The second—composed of research investigation of a particular subject in a special field and the presentation of such research findings in a written dissertation—culminates in the final examination.

Detailed information on the program is provided in a separate publication obtainable on request.

ADMISSION TO DOCTORAL STUDY

The applicant must have adequate preparation for advanced study, including a satisfactory Master's degree, or the equivalent, together with acceptable personal qualities and a capacity for creative scholarship. He must have capabilities and interests beyond the mere assimilation of assigned materials in formal courses of instruction. Originality of mind combined with balanced judgment and accuracy in observation or experiment are necessary to the successful applicant.

APPLICATION FOR ADMISSION

Well in advance of the opening of the semester for which the student seeks admission, he should have a personal interview with the Dean or the professor under whom he wishes to study, to discuss the field of study, the University's facilities for graduate study in this field, the applicant's qualifications, and the possibilities of an effective doctoral program. If an application for admission is indicated, the student will be advised concerning the details of application procedure, and his application will be referred for admission decision to a committee on admissions appointed to consider his qualifications.

LANGUAGE REQUIREMENTS

A reading knowledge is required of two foreign languages important in the student's field of interest. One language examination must be passed before admission to graduate study. The second must be passed before admission to the qualifying examination and within one year of the start of study for the qualifying examination.

STUDY FOR QUALIFYING EXAMINATION

Upon admission to study for the qualifying examination the student's admission committee becomes his Consultative Committee, which prescribes and directs his studies. The Committee assigns fields of learning to insure his breadth of knowledge and

support research in his central field. Members of the Committee advise the student concerning the scope and content of these fields of study and guide him in preparation for his examination.

The purpose of the qualifying examination is to ascertain that the student's breadth of background and intellectual development are adequate to support doctoral research and investigation in his central field. The qualifying examination is both written and oral and usually extends over a period of six days. It is given by a special committee consisting of members of the student's Consultative Committee and other specialists. Upon favorable report of the examiners to the Dean the student is admitted to candidacy for the degree, to pursue his specialized study and research under the supervision of a designated member of the Faculty.

The examination is the sole test of the student's ability to qualify for admission as a candidate for the degree, and to enter the second stage of his doctoral discipline.

RESEARCH, THE DISSERTATION, AND THE FINAL EXAMINATION

The student admitted to candidacy for the degree requests as Master in Research the member of the Faculty under whom he wishes to study. The Faculty member may accept or reject such request. The research is arranged by the Master and approved by the Dean. Throughout the remainder of the doctoral program, the candidate is responsible solely to his Master in his research and in the presentation of his dissertation.

THE DISSERTATION

A dissertation is required as evidence of ability to perform scholarly research and to interpret and present its results.

No later than the date specified in the calendar the candidate must submit to the Dean three complete copies of the dissertation (including a summary which is to be inserted as an appendix) together with a fourth copy of the summary and a copy of the abstract for inclusion in the announcement of the examination. It is the responsibility of the candidate for a Doctoral degree to obtain from the Dean a printed copy of the regulations governing the styling and reproduction of the dissertation, which are rigidly enforced. The summaries of accepted dissertations will be printed in a numbered issue of the University BULLETIN. The successful candidate for the doctorate is required, before receiving his degree, to pay a fee to cover the expense of printing the summary of his dissertation.

Accepted dissertations, with accompanying drawings, become the property of the University and are deposited in the University Library, where the duplicate copies are bound and made available for circulation. Permission to publish or adapt material in them must be secured from the Dean.

THE FINAL EXAMINATION

Upon approval of the dissertation by the Master, the candidate is presented for his final examination.

The final examination is oral and is open to the public. The candidate must demonstrate a mastery of his special field of interest and of the materials and techniques used in the research. The committee of examiners includes members of the Faculty competent in the research field or in closely related subjects and may also include

qualified experts brought to the University especially to participate in the examination. If the candidate satisfies the examining committee concerning the high quality and originality of his contribution to knowledge as well as his mastery of the scholarly and research techniques of his field, the Faculty recommends him for the degree of Doctor of Science.

RESIDENT AND CONTINUOUS STUDY

All of the work for the degree must be done in residence (on the campus), except when special permission is granted to conduct research in an approved off-campus facility. The student must maintain continuous registration in the School, even when granted a leave of absence. Failure to do so disrupts the student's residence status, and he must apply for readmission to graduate study under whatever new conditions and regulations are set up by his consultative committee.

There is no formal regulation concerning the minimum amount of time to be spent in preparation for the qualifying examination or as a candidate engaged in doctoral research. The qualifying examination, however, must be completed within five years of the date of admission, and the entire degree program must be completed within seven years. After admission the student may apply for his qualifying examination whenever his consultative committee believes that he is prepared to take it; his research and specialized study may be undertaken with whatever concentration of time and the approval of his research adviser. Normally a minimum of two years of full-time study and research is spent in meeting the requirements for the degree.

The Center for Measurement Science

The Center, under the direction of the School of Engineering and Applied Science, is a cooperative activity of the University, industry, and government providing education, research, and service programs related to measurement. It was established by the University in 1960.

The principal, but not exclusive, activities of the Center are:

The education of persons for careers in measurement science;

The development and improvement of measurement, standardization, and calibration techniques, apparatus, and data with particular reference to high precision.

The provision of staff and facilities to industry for research and consultation on measurement problems in industry, including the maintenance of primary standards of measurement directly traceable to the national standards.

The publication of results of research, materials of practice and procedures, and information related to measurement science.

The Center maintains relations with industry and government through its Associate Program, in which interested individuals, companies, or other organizations may participate. The mutual communication, collaboration, and support made possible by this program bring vitality to the Center activities and insure attention to the needs of industry and government.

Through these and other activities the Center serves as a source of personnel competent in measurement science, as an instrument for collaborative research on measurement problems, and as a service organization providing expert capability to industrial and government organizations in the solution of their measurement problems.

THE EDUCATION PROGRAM

The Education Program of the Center consists in part of curricula offered by the School, which prepare the student to assume responsibilities in the field of measurement science. The curricula are integrated, to permit a student to terminate his formal education at any level, or to proceed to the next level. Programs lead to the Engineering Technologist Certificate and the degrees of Bachelor of Science, Master of Science, and Doctor of Science.

In addition to the certificate and degree programs, the education program includes seminars, special conferences, and short courses offered from time to time.

ENGINEERING TECHNOLOGIST CERTIFICATE

This is a two-year program open to high school graduates who meet the requirements for admission stated on pages 20 and 21.

FIRST YEAR		Semester Hours
Graphical Communication		3
English and Math in Applied		3
Elect. Mathematics and Statistics		6
Fundamentals of Measurement Science I-II		8
Calculus I-II, III-IV		12
Introductory Physics		3
General Physics		3
Total		38

Ap S 3
Ap S 4
Ap S 5, 6
Ap S 105, 7
Math 27, 28
Physics 11
Physics 14

SECOND YEAR		
General Field Theory		3
General Wave Theory		3
Introductory Transducers and Instrumentation		3
Introductory Analytical Mechanics I-II		10
General Chemistry		8
Mathematics for Engineers and Physicists I		3
General Physics		6
Total		36

Ap S 10
Ap S 11
Ap S 52
Ap S 59, 60
Chem 13-14
Math 111
Physics 15, 16

THE RESEARCH PROGRAM

The research program of the Center includes all aspects of research and development related to measurement science. Research and/or development may be undertaken as independent studies by staff members for the Center, as studies for a sponsor under contract, or by personnel or Associates of the Center assigned to the Center to undertake the specific work. Associates receive publications of the Center; certain publications may be restricted in distribution.

THE SERVICE PROGRAM

The Center arranges for consultation and assistance of the Faculty and Staff and the use of the facilities of the Center in connection with specific problems in measurement. The program is restricted to the use of the Associates of the Center.

The Service Program also makes it possible for Associates to engage the various resources of the University, through the Center, as may be desirable and feasible, in solution of their problems in measurement.

Fees and Financial Regulations

By authorization of the Board of Trustees, the following fees were adopted for the academic year 1963-64.

Tuition Fees

School of Engineering and Applied Science

Undergraduate study:

Fulltime program (12 or more hours a semester)..... 600.00

Parttime program, for each semester hour..... 40.00

Master's study, including comprehensive examination*..... 1,100.00

Doctor of Science:

For work leading to and including the qualifying examination..... 1,200.00

For work leading to and including the final examination..... 1,200.00

For courses offered by Columbian College of Arts and Sciences; the School of Government, Business, and International Affairs; or the Division of Air Science..... 70.00

Additional Course Fees

In certain courses additional fees, such as laboratory and material fees, are charged as indicated in the course descriptions. These fees are charged by the semester and, unless otherwise indicated, may be deferred in three payments when the tuition is paid in this manner. Breakage of apparatus is charged against the individual student. When breakage is in excess of the normal amount provided for in the laboratory fee the individual student will be required to pay such additional charges as are determined by the department concerned.

Graduation Fees

Engineering Technologist Certificate..... 10.00

Bachelor's, Master's, Doctor's degrees..... 25.00

Fee for Binding Master's Thesis..... 6.00

Fee for Printing Summary of Doctoral Dissertation..... 85.00

Special Fees

Application fee (degree candidate), nonrefundable..... 15.00

Application fee (non-degree candidate)..... 10.00

Admission tests (when required)..... 6.00

Graduate Record Examination fee (to cover two examinations), charged each candidate for a Bachelor's degree at the time of registration for the final semester of study (excluding summer session)..... 10.00

Late registration fee, for failure to register within designated period..... 5.00

Change fee, for each change in program (dropping or adding a course, changing from one section to another within a course, change of status (from auditor to credit or vice versa), and change in credit hours for the course)..... 2.00

Withdrawal fee, charged in special cases..... 5.00

Service fee, for late payment of tuition (see "Payment of Fees")..... 5.00

Reinstatement fee, for reinstatement after financial suspension..... 5.00

* Any student admitted to Master's study may elect to pay the total fee at the beginning of his program or on a deferred basis at \$40 a semester hour until the total fee is paid. Students completing payment of the total fee before completion of the required work (including thesis and comprehensive examination) will be granted registration on an "in residence—no charge" basis for one semester immediately following the semester in which tuition payment is completed. Students requiring additional time for completion of required work after completion of payment of the total fee and the expiration of a semester "in residence—no charge" must register "in residence" each semester and pay the normal "in residence" fee.

Residence fee*, to maintain the residence status during any semester of absence from the University or after completion of tuition requirements. Due and payable on the official day of registration.	\$0.00
Engineers' Council fee, charged each student in the School of Engineering and Applied Science for each semester or any part thereof except the summer term.	1.50
For each examination to qualify for a second standing and for each special examination.	5.00
English test for foreign students (when required).	5.00
Laboratory checkout fee, for failure to check out of Chemistry laboratory by the date deadline set by the instructor.	3.00
Transcript fee, for each transcript of record.	1.00

Registration in the University entitles each student to the following University privileges: (1) the services of the Placement Office; (2) the use of University library; (3) museum privileges; (4) admission to all athletic contests, unless otherwise specified; (5) subscription to the *University Hatchet*, the student newspaper; (6) admission to University debates; (7) medical attention and hospital services as described under Health Services. These privileges terminate and a student is no longer a resident when he withdraws or is dismissed from the University.

PAYMENT OF FEES

All fees are payable at the Office of the Cashier, 725 Twenty-first Street NW. No student is permitted to complete registration or attend classes until all fees are paid. Fees are due and payable in advance at the time of each registration.

The student may sign a contract for semester charges, except for fees payable in advance, permitting payments as follows:

Fall Semester.—One-third at the time of registration; one-third on the first working day in November; one-third on the first working day in December.

Spring Semester.—One-third at the time of registration; one-third on the first working day in March; one-third on the first working day in April.

Arrangements for the above may be made with the Office of the Cashier at the time of registration. Installment-due notices are mailed. However, nonreceipt of notice is no excuse for failure to meet obligations when due.

A student who fails to meet payments when due, but pays his fees within the following two weeks of the date on which payment is due, is charged a \$2 service fee. A student who fails to meet payments within these two weeks after payment is due is automatically suspended and may not attend classes until he has been officially reinstated and paid all accrued fees and a \$5 reinstatement fee.

A student suspended for failure to meet payments when due may not be reinstated for the semester after two weeks from the date of suspension. Applications for reinstatement are to be made to the Office of the Cashier.

An auditor pays all fees chargeable to the student registered for credit except the registration fee.

* Payment of the residence fee entitles the student who is granted leave of absence to return and continue work toward a degree under the academic requirements which were in force at the time of his departure. The residence fee applies toward neither financial nor residence requirements for the next semester. See also Institute on page 31.

The University work week is Monday through Friday, inclusive.

WITHDRAWALS AND REFUNDS

Application for withdrawal from the University or for change in class schedule must be made in person or in writing to the Dean. Notification to an instructor is not an acceptable notice (see "Withdrawal", pages 41-42).

In authorized withdrawals and changes in schedule, financial adjustments will be made as follows:

Fall Semester

Full-time program.—Complete withdrawal from the University dated on or before the last working day* in October or November, cancellation of two-thirds or one-third, respectively, of the full-time program charges.

Partial withdrawal dated on or before the last working day* in October or November, cancellation of two-thirds or one-third, respectively, of the difference between the charges for the full-time program and the hourly charges of the part-time program continuing in effect.

Part-time program.—Withdrawal dated on or before the last working day* in October or November, cancellation of two-thirds or one-third, respectively, of tuition charges.

Spring Semester

Full-time program.—Complete withdrawal from the University dated on or before the last working day* in February or March, cancellation of two-thirds or one-third, respectively, of the full-time program charges.

Partial withdrawal dated on or before the last working day* in February or March, cancellation of two-thirds or one-third, respectively, of the difference between the charges for the full-time program and the hourly charges of the part-time program continuing in effect.

Part-time program.—Withdrawal dated on or before the last working day* in February or March, cancellation of two-thirds or one-third, respectively, of tuition charges.

No refund or reduction will be allowed on any withdrawal dated after the last working day* in November (fall semester) or March (spring semester).

A student enrolled in a full-time program, who drops or adds a course and continues to be in a full-time program, will have no financial adjustments of tuition made other than those involving course fees.

In no case will a refund be made of the first third of the total tuition charges. In no case will tuition be reduced or refunded because of absence from class.

Payment applies only to the semester for which a registration charge is incurred and in no case will this be credited to another semester.

Students in chemistry who fail to check out of the laboratory on or before the date set by the instructor, unless excused by the instructor, will be charged a \$3 checkout fee. A student who drops a course before the end of the semester must check out of the laboratory at the next regular laboratory period.

Students enrolled in the ROTC who fail to turn in uniforms, equipment, and textbooks, on separation from the Corps, are charged the value of the missing items.

Authorization to withdraw and certification for work done will not be given a student who has not a clear financial record.

Students are encouraged to provide their own cash funds until they can make banking arrangements in the community.

* The University work week is Monday through Friday, inclusive.

Fellowships, Scholarships, Prizes, Financial Aid

FELLOWSHIPS AND ASSISTANTSHIPS

The following fellowships, graduate scholarships, and assistantships are available. Unless otherwise specified, applications should be submitted not later than March 1 preceding the period for which the award is to be made. They should be directed to the Dean of the School and addressed to The George Washington University, Washington, D. C. 20006.

University Teaching Fellowships—Assigned for the academic year. The applicant is expected to be a prospective candidate for a Doctoral degree in the general field of his future doctoral study. Each teaching fellow receives an annual stipend (on a nine-month basis) of up to \$2,000 plus tuition and laboratory fees for whatever schedule of study or research his fellowship duties permit him to carry. Tuition and laboratory fees may not exceed \$600. Stipends vary with the work load of the individual teaching fellow. Normally a University teaching fellow renders half-time service in classroom or laboratory assignments. Application should be made to the Dean.

Graduate Teaching Assistantships—Open to candidates for the Master's degrees. Each graduate teaching assistant renders a designated unit of service, and receives, depending upon his teaching or laboratory assignment, up to \$2,000 on a nine-month basis plus tuition and laboratory fees for the program of studies which the duties of his assistantship permit him to carry. Tuition and laboratory fees may not exceed \$600. Application should be made to the Dean.

National Science Foundation Cooperative Graduate Fellowships—Fellowships at \$2,400 for twelve months or \$1,200 for nine months, with tuition waived, are available in the mathematical, physical, medical, biological, and engineering sciences and in certain other fields regarded as employing science methods. Application should be made to the Graduate Council not later than November 1 for the following year.

SCHOLARSHIPS AND PRIZES

Scholarships are awarded for the academic year unless otherwise specified and are divided in equal parts for each semester. Each holder must carry a full schedule of academic work (thirteen semester hours or in the professional schools, the full professional schedule) during the period for which the scholarship is awarded.

A letter of application should be submitted on or before April first for the following academic year and, unless otherwise specified, should be addressed to the Chairman of the Committee on Scholarships. Awards are made during the month of April. All scholarships begin with the fall semester.

The following scholarships and prizes are limited to students in the School of Engineering and Applied Science. The University offers many others which are open to all students. A special bulletin containing a complete list and full information concerning students. A special bulletin containing a complete list and full information

tion concerning teaching fellowships, scholarships, and prizes, may be obtained from the Chairman of the Committee on Scholarships, The George Washington University, Washington, D. C. 20006.

Association of Federal Communications Consulting Engineers Scholarship (1950).—A full-tuition scholarship, including laboratory fees and books. Available to a student of good character, promise, and leadership working toward the degree of Bachelor of Science (Electrical Engineering) and intending to major in communications.

Frederick Albert and Alma Hand Britten Scholarships (1959).—Bequest of Alma Hand Britten for scholarship aid to needy students preparing for the engineering profession. Application must be made not later than March 1 on forms which are available at the Office of the Dean of the School of Engineering and Applied Science.

Henry Harding Carter Scholarship (1896).—A \$500 scholarship established by Maria M. Carter in memory of her husband to aid a deserving student who is preparing for the civil engineering profession.

School of Engineering and Applied Science Scholarships.—Four scholarships are awarded each year to graduates of accredited high schools. Each scholarship provides full tuition for four academic years (excluding summer work and special fees), provided the student maintains an average of B and a satisfactory standard of deportment.

Applications must be made before March 1 for the following academic year. Application forms are available in the Office of the Dean of the School of Engineering and Applied Science.

Henry Parsons Erwin Scholarship (1955).—Established by Helen B. Erwin as a memorial to her husband, a former Trustee of the University. A partial scholarship for a student in Engineering or Applied Science.

Norman B. Ames Memorial Award.—Established by many friends of Professor Ames and awarded annually to a graduating senior of the School of Engineering and Applied Science who is nominated by his fellow students as having made significant contributions to the students in the School of Engineering and Applied Science and to the School and University.

Martin Mahler Prize in Materials Testing.—A one-year membership in the American Society for Testing Materials awarded to the upper division or graduate student in engineering who submits the best reports on tests in the Materials Laboratories course with preference given to prestressed concrete tests.

School of Engineering and Applied Science Distinguished Scholar.—A certificate awarded annually by the Faculty of the School of Engineering and Applied Science to the senior who graduates with the highest scholastic standing. The student's name is engraved on a plaque displayed in Tompkins Hall.

Sigma Tau Prize.—A medal awarded annually by the Xi Chapter to the freshman in the School of Engineering and Applied Science who maintains the highest scholastic standing in the work of the entire year.

Theta Tau Activities Plaque.—A plaque awarded annually by Gamma Beta Chapter to the senior in the School of Engineering and Applied Science with the most outstanding record in activities for the entire period of his attendance.

* The scholarship is renewable and is, therefore, not available each year for award to an incoming freshman.

FINANCIAL AID

The following loan funds are available to students in the University in accordance with the qualifications placed thereon by the donors. Students should direct inquiries to and file applications with the Office of the Vice President and Treasurer.

University Loan Fund.—The Trustees of the University have made available a fund for short-term loans to students to provide for partial payment of tuition. Application should be made three days prior to the dates on which tuition installments are due.

National Defense Student Loan Fund.—This fund is available to full-time undergraduate and graduate students who are in need of financial assistance. Priority is given applicants who express a wish to teach in elementary or secondary schools, and whose academic background indicates a superior capacity or preparation in science, mathematics, engineering, or a modern foreign language. After application for admission to the University has been completed, application on forms prescribed for this loan must be filed in the Office of the Vice President and Treasurer no later than (1) for the fall semester—June first for students currently registered in the University and July first for entering students; (2) for the spring semester—December first; (3) for the Summer Sessions—May first.

John Brewster Willis, Jr., Loan Fund in Mechanical Engineering.—A fund of \$1,000, established by Mrs. William L. Lane as a memorial to her nephew, John Brewster Willis, Jr., is available to Mechanical Engineering students (graduate or undergraduate) who are primarily interested in aeronautics.

Because many parents may wish some option in meeting and financing all or part of the cost of a college education, the University offers educational loan plans through the Girard Trust Corn Exchange Bank in Philadelphia, Pennsylvania, and Funds for Education, Inc., Manchester, New Hampshire.

Although similar in purpose, the two plans mentioned above vary somewhat in coverage and conditions. One year and multiple year plans are available for both. Both plans provide insurance covering the life and health of the sponsor. The Girard Assured Education Plan may cover tuition, fees and/or residence hall charges only. Application is made through the University and advances are paid directly to the University. No application fee is charged.

Funds for Education, Inc., may cover all expenses and advances can be made directly to either the University or to the sponsor of the student. Application is made directly to Funds for Education, Inc. A \$10 deposit with application is required.

Individuals over twenty-one years of age who are employed full-time are also eligible to apply. They may sponsor their own contracts, provided they meet the conditions specified by the plan for which they are applying.

Brochures and applications describing both of these plans are available in the Office of the Vice President and Treasurer.

A list of banks and commercial finance firms offering various types of tuition payment plans is available through the Office of the Vice President and Treasurer.

Residence Halls

Complete information concerning the University's residence halls is available at the Office of the Dean of Men or the Office of the Dean of Women, The George Washington University, Washington, D. C. 20006.

Information concerning off-campus housing near the University may be obtained at the Office of the Dean of Men. The reservation of rooms in private houses must be made by students.

Admission to the University does not include a room reservation. A separate application for a room should be made well in advance (for the fall semester by the first, for the spring semester by January first). Rooms are leased for the academic year, and a deposit of \$100, which is credited toward the fall semester room charge, is required. If notice of withdrawal or cancellation of room reservation is received prior to June 1, \$50 of the deposit will be refunded. Room rentals are payable in advance by the semester.

All unmarried women students under twenty-two years of age and enrolled in twelve or more hours of academic work during the fall or spring semester or six or more hours during a summer session are required to live in the University residence halls or at home with their parents. Upon written approval of their parents and the permission of the Dean of Women, freshman women may live with immediate relatives and upperclass women may live with contemporaries of their parents. Under no circumstances may an unmarried woman student under twenty-two years of age taking a full academic program live in an apartment with her contemporaries.

All unmarried freshmen men under twenty-one years of age and enrolled for twelve or more hours of academic work during the fall or spring semester or six or more hours during a summer session are required to live in the University residence halls, or at home with their parents. In exceptional cases permission to live elsewhere may be given a student by the Dean of Men.

Registration

A student cannot register for classes until he has received a letter of admission to the University, issued by the Office of the Director of Admissions.

A student previously registered in the University who was not registered on-campus during the immediately preceding semester, must apply for readmission in the Office of Admissions in advance of registration.

No registration is accepted for less than a semester or one summer session.

A student may not register concurrently in the School of Engineering and Applied Science and in another institution or another division of this University without the prior permission of the Dean. Allowance of credit for work done concurrently at another institution will be at the discretion of the Dean's Council.

For the dates and hours of registration, see the calendar, page 5.

Regulations

A student who withdraws or is suspended, or is otherwise absent from the University for one semester or more, must apply for readmission and, if admitted, may continue his work only under the rules and regulations in force at the time of his return.

If a student knowingly makes a false statement or conceals material information on an application for admission, registration card, or any other University document, his registration may be canceled and he will be ineligible (except by special action of the Faculty) for subsequent registration in any unit of the University.

ATTENDANCE

A student may not attend classes until registration is completed and fees due are paid. A student may be dropped from any course for undue absence.

A student suspended for any cause may not attend classes during the period of suspension.

The student is expected to attend every meeting of the course in which he is registered, fully prepared to carry on the work required. The student is held responsible for all work in the course, and all absences must be excused before provision will be made for him to make up the work missed. Excuses for absences from examinations must have been announced in advance can be obtained only by making written application to the instructor in charge of the course.

AMOUNT OF WORK

A full-time undergraduate student who is not on probation may take no more than 2 semester hours. A student employed more than 24 hours a week who is not on probation may take no more than 10 semester hours. In exceptional cases these limits may be exceeded with the Dean's permission.

A student previously unemployed who accepts employment after registration must immediately report that fact to the Dean so that his schedule may be adjusted if necessary.

SCHOLARSHIP REQUIREMENTS

A student must maintain a quality point index of at least 2.00 to be in good academic standing.

A student who fails to satisfy the scholarship requirements of the School of Engineering and Applied Science may be suspended from the School.

GRADES

Grades are mailed to the student through the Office of the Registrar at the close of each semester. They are not given out by instructors.

Undergraduate.—The following grading system is used: A, excellent; B, good; C, average; D, passing; F, failing; CR indicates procedural or thesis credit. Whenever

a grade has not been assigned the symbol *I* (incomplete) or the symbol *W* (excused withdrawal) will be recorded. The symbol *I* indicates that a satisfactory explanation has been given the instructor for the student's failure to complete the required work of the course. An "incomplete" cannot be made up after the lapse of one calendar year except by written permission of the dean's council of the college, school, or division concerned. An incomplete which is not removed within one calendar year is automatically changed to an *F*. A student may not repeat for grade a course in which he has received a grade of *D* or above, unless required to do so by the department concerned. A written statement to this effect must be submitted to the Registrar by the Dean.

Graduate.—For graduate work, grades are indicated as *E* (excellent), *S* (satisfactory), *U* (unsatisfactory), *I* (incomplete).

THE QUALITY-POINT INDEX

Undergraduate.—Scholastic standing is computed in terms of the quality-point index, obtained by dividing the number of quality points by the number of semester hours for which the student has registered, both based on the complete record in this University applicable to the degree objective of the student.

Quality points are computed from grades as follows: *A*, four points; *B*, three points; *C*, two points; *D*, one point; *F*, no points, for each semester hour for which the student has registered. Courses marked *W* or *I* are not considered in determining the index, except that courses marked *I* will be considered when a formal grade is recorded. An incomplete which is not removed within one calendar year is automatically changed to an *F*. Grades in courses taken at another institution are not considered in computing the quality-point index.

In order to graduate, a student must have a quality-point index of at least 2.00 in all work taken at this University and accepted in the School of Engineering and Applied Science.

Mid semester Warning.—At the end of the seventh week of each semester, instructors report to the Dean the names of students whose scholarship is unsatisfactory. On receipt of a warning notice the student must consult his instructor and his adviser immediately.

The adviser may prescribe diagnostic tests and/or remedial study to be completed before the end of the current semester.

Probation.—A student whose quality-point index falls below 2.00 is placed on probation. This probation extends over the period in which the student completes a minimum of 12 semester hours of study.

A student on probation may be required to follow a program of study including remedial studies as prescribed. He may not hold office, participate in the activities of any student organization, or represent the School in any student activity.

Suspension.—A student whose quality-point index is below 2.00 at the end of his probationary period is suspended. A student whose index falls below 2.00 after removal from probation is suspended.

At the time of his suspension a student may apply to the Dean's Council for guidance concerning remedial action he should take during the period of his suspension.

A student suspended for poor scholarship may apply to be readmitted in the semester or summer session which begins next after an interval of one calendar year.

or be considered for readmission he must pass prescribed tests. A student readmitted after suspension is on probation. He must maintain a current quality-point index of at least 2.50 on each 12 semester hours of work undertaken until his cumulative index is 2.00. In no case will the probationary period after readmission exceed 24 hours of study. A student suspended twice for poor scholarship will not be readmitted.

ACADEMIC DISHONESTY

Evidence of dishonesty on the part of any student will result in his suspension from the University upon the recommendation of the appropriate Dean's Council.

A student found guilty of dishonesty will be suspended for a stated period and will be deprived of credit for all courses in which he is enrolled during the semester in which the dishonest act occurs. A disciplinary grade of "Failure—Academic Dishonesty" will be recorded for each such course, and this grade will be employed in computation of the quality-point index.

A student suspended because of academic dishonesty should be readmitted, he will be required to repeat for grade all courses for which a disciplinary grade has been recorded, and both the grade earned on repetition and the disciplinary "Failure—Academic Dishonesty" grade will be employed in computation of the quality-point index.

HONORS LIST

The Faculty of the School of Engineering and Applied Science recognizes meritorious scholastic achievement by an Honors List, containing in alphabetical order the names of candidates for undergraduate degrees whose scholastic achievement satisfies the following requirements:

1. The candidate's cumulative quality-point index is equal to or exceeds 3.00.
2. At least 30 semester hours of credit have been earned while a degree candidate at the School of Engineering and Applied Science.
3. At least 15 (part-time student) or 30 (full-time student) semester hours of credit in a degree curriculum have been earned in the two semesters immediately preceding the award.
4. No grade below C has been received during the qualifying period stated above.
5. No disciplinary action has been taken in respect to the student.

The Honors List is prepared at the end of the fall and spring semesters and displayed in an appropriate public place in the School. A notation is made on the student's record each time his name is included in the List.

WITHDRAWALS

Applications for withdrawal from the University or for change in class schedule must be made in person or in writing to the Dean of the School. Notification to an instructor is not an acceptable notice.

Withdrawal from a course or from the University, *without academic or financial consideration*, requires the permission of the Dean of the School. Permission to withdraw from the University will not be granted a student who does not have a clear financial record.

Withdrawal from any course without academic penalty after the fourteenth day following the first day of classes of a semester may be granted by the Dean under

the following conditions: (1) exceptional circumstances make the request necessary; (2) the request is submitted on the official form for late withdrawals; (3) as of the date of request, the grades in all courses involved are C or better.

In the exceptional circumstances mentioned above the Dean may authorize withdrawal without academic penalty. In all cases financial regulations governing withdrawals remain in full effect.

Withdrawal between the last working day* in October and the end of the fall semester and between the last working day* in February and the end of the spring semester is permitted only in exceptional cases.

All charges for courses dropped without the approval of the Dean must be met by the student. Reporting the dropping of a course to an instructor does not effect its discontinuance.

A student may not withdraw from either the basic course or the advanced course of the Air Force ROTC without the approval of the President of the University.

CHANGES IN PROGRAM OF STUDIES

After the registration period a student may not make any changes in his registration without the approval of the Dean. Requests for changes in registration must be made on forms provided in the Office of the Dean.

During the seven days following the first day of classes of a semester, additional courses may be added to the student's program with the approval of the instructor, the student's adviser, and the Dean.

Courses may be dropped without academic penalty only during the fourteen days following the first day of classes, with the approval of the instructor, the student's adviser, and the Dean.

A graduate student may withdraw from a graduate course without academic penalty only within the first four weeks of a semester.

CREDIT

Credit toward a degree is given only after registration for and satisfactory completion of the required work of classes or upon the granting of advanced standing in accordance with the regulations of the School. A student who takes a course as an auditor may not take the same course later for credit.

On request the Registrar will issue to undergraduate degree candidates a balance sheet showing the amount of work completed and the requirements remaining to be met for the degree.

TRANSCRIPTS OF RECORD

Official transcripts of student records will be issued on request of the student or former student. A fee of one dollar is charged for each transcript. No certificate of work done will be issued for a person who does not have a clear financial record.

* The University work week is Monday through Friday, inclusive.

SUMMER SCHOOL CREDIT

A student who plans to attend summer school sessions at another institution and transfer credits so earned toward graduation from this University must first secure the written approval of the Dean. Transferred credits will not be recognized in excess of those which might be earned in a similar period in this institution.

USE OF CORRECT ENGLISH

Any student whose written or spoken English in any course is unsatisfactory may be required by the instructor in the course. The Dean may assign supplementary work, adjust attendance credit, varying in amount with the needs of the student. If the work prescribed is equivalent to a course, the regular tuition fee is charged. The granting of a degree may be delayed for failure to make up any such deficiency in English to the satisfaction of the Dean.

GRADUATION REQUIREMENTS

To be recommended by the Faculty for graduation a student must have met the graduation requirement of the School, completed satisfactorily the scholarship, curriculum, residence, and other requirements for the certificate or degree for which he is registered, and be free from all indebtedness to the University.

Application for Graduation.—Application for a certificate or degree must be filed at the Office of the Registrar at the time of registration for the last semester or summer session of the senior or final year.

Students expecting to complete requirements for degrees during the summer session must apply for graduation as a part of registration for the summer session.

Curriculum.—Curriculum requirements for the Engineering Technologist Certificate are stated on page 31; for the Bachelor's degrees, on pages 9-19; for the Master's degrees, on pages 25 and 26.

Graduate Record Examination.—All candidates for Bachelor's degrees must take as part of the Graduate Record Examination in the University's institutional testing program. The examinations are conducted by the University twice a year: the Fall Testing Session, for seniors graduating in February, and the Spring Session, for seniors graduating in June. Dates of the examinations are announced in the *Schedule of Classes*.

Each senior required to take the Graduate Record Examination must register for it in the Office of the Dean when he registers for his final regular semester of study (including summer sessions). A \$1.0 examination fee is payable at the time of registration.

Students receive individual reports of test scores and may avail themselves of the transcript services of the Educational Testing Service. By special permission seniors desiring to graduate in June may take the Graduate Record Examination at the previous Fall Testing Session, so as to have transcripts available early in the year when applying for admission to graduate schools.

Residence.—For the Engineering Technologist Certificate, a minimum of 30 weeks and no less than 30 semester hours must be completed in residence.

For the Bachelor's degrees, a minimum of 30 weeks and 30 semester hours must be completed in residence. Summer work may be counted. Unless special permission is granted by the Dean to study elsewhere, the work of the final year must be completed in residence.

The graduate student must meet the residence requirements for the degree for which he is registered.

In Residence Status.—A student who is absent from the University for one semester or more is required to satisfy the curriculum requirements existing at the time of his readmission unless during his absence he maintains "in residence" status by paying the appropriate fee, see page 33. For the purpose of this regulation the summer term will be disregarded.

The student who has completed his tuition requirements, but whose graduation is deferred for any reason, must maintain "in residence" status by paying the residence fee.

Attendance and Conduct.—The University reserves the right to refuse to confer a degree upon a candidate whose attendance or conduct has been unsatisfactory.

Thesis or Dissertation.—A thesis or dissertation submitted in partial satisfaction of requirements for a Master's or Doctor's degree, respectively, must be presented in its final form to the Dean no later than the date specified in the calendar. Three complete copies are required.

Graduation in Absentia.—Application for graduation in absentia must be submitted to the Dean.

HONORS

With distinction.—A Bachelor's degree may be conferred "with distinction", at the discretion of the Faculty, if a student attains a quality-point index of 3.50 or higher on all work taken at this institution. To be eligible for this honor a student must have completed at this institution at least one-half of the work required for the degree.

Special honors.—A Bachelor's degree may be conferred with "Special honors", at the discretion of the Faculty, for outstanding achievement in the student's Advanced Level work on recommendation of the Faculty, under the following regulations:

1. The student must have his candidacy for special honors approved by the faculty member representing the major field not later than the beginning of the Advanced Level study.
2. The student must meet such other conditions as may be set at the time his candidacy is approved.
3. No student will be awarded special honors unless he has a quality-point index of at least 3.00 on all work taken at this institution.
4. To be eligible for honors a student must have completed at this institution at least one-half of the work required for the degree.

THE LIBRARY

A student registered in the University is entitled to the reference use of the University Library. The Student Identification Card, issued upon the payment of fees, must be presented as identification.

The loan period for most books available for home circulation is two weeks, with an additional two-week renewal. A fine of five cents will be charged for each day a book is overdue. Any book which does circulate is subject to recall by the Librarian at any time. Reserve books for collateral reading must be used in the reading room when the Library is open. With special permission they may be drawn for overnight use when the Library closes. A fine of twenty-five cents will be charged for the first hour or fraction of an hour and five cents for each hour or fraction thereafter that a reserve book is overdue. Grades of a student will be withheld until his library record is clear.

HOURS

The University Library is open from 9:00 A.M. to 10:00 P.M. each class day (Saturday 9:00 A.M. to 5:00 P.M.), and from 2:00 to 6:00 P.M. on Sunday.

RIGHT TO DISMISS STUDENTS

The right is reserved by the University to dismiss or exclude any student from the University, or from any class or classes, whenever, in the interest of the student or the University, the University Administration deems it advisable to do so.

RIGHT TO CHANGE RULES

The University and its various colleges, schools, and divisions reserve the right to modify or change requirements, rules, and fees. Such regulations shall go into force whenever the proper authorities may determine.

PROPERTY RESPONSIBILITY

The University is not responsible for the loss of personal property in any University building. A "Lost and Found" Office is maintained in the Student Union.

Student Services and Activities

HEALTH SERVICES

The Health Services Staff assists students with their medical needs by advice and treatment, by proper referral when necessary, and by cooperation with other physicians. For medical emergencies and health consultations there is, on the campus, a Student Health Clinic open from 9 A.M. to 5 P.M., Monday through Friday, during the academic year and Summer Sessions, with physician and nurse in attendance. There is also a rest room for women with a graduate nurse in charge. For night and weekend emergencies, students may go to the emergency room of the University Hospital for treatment. The basic fee for this visit will be paid by the Health Services, and all other charges will be the responsibility of the student. This arrangement is for emergency care only. Medical privileges include: (1) physical examination of all students who are ap-

plaints for course in Physical Education;* (2) three visits in any one illness by a member of the Health Services Staff, office or residence (District of Columbia); (3) hospitalization, including board and nursing, in the University Hospital for not more than one week during any twelve-month period—the necessity to be determined by the Director of Health Services;† All additional hospital charges for operating room, anesthetics, laboratory, X-ray, medications, or any special services must be paid by the student. Expenses incurred for examinations and treatment by specialists, such as eye refraction and provision of glasses; orthopedic examinations and application of cast or other appliance; laboratory and X-ray work; and surgical operations must be paid by the student.

The medical benefit applies only to illness or disability incurred while currently enrolled in the University. It does not apply to illness or disability incurred between the last day of examinations for a semester or summer session and completion of registration for the next semester or summer session.

The student is allowed, if he so desires, to engage physicians and nurses of his own choice, but when he does so he will be responsible for the fees charged.

Rules: (1) The Director of Health Services is empowered to limit or deny medical benefit where, in his discretion, a student has, by his misconduct or breach of the rules of the University, made himself ineligible; (2) the Director of Health Services has authority to determine the necessity and length of hospitalization; (3) a student not currently enrolled or one who has severed his connection with the University is ineligible for medical benefits; (4) a student intending to train for an athletic sport is required to pass a thorough examination at the beginning of each semester; (5) hospitalization is not available to those students availing themselves of other hospitalization coverage for the same illness.

The University is not responsible for injuries received in intercollegiate or intramural games, or in any of the activities of the physical education departments.

The University is not responsible for injuries received in intercollegiate or intramural games, or in any of the activities of the physical education departments.

VETERANS EDUCATION

The personnel of the Office of the Dean of Men, Woodhull House, 2033 G Street NW., act as advisers to veterans and war orphans and in a liaison capacity between the University and the Veterans Administration. This Office should be consulted concerning educational benefits before applying to the Veterans Administration for certification. The Veterans Administration is on Constitution Avenue at Twentieth Street NW., Washington, D.C. 20420.

Students eligible under one of the state laws should also contact this Office.

PUBLIC LAW 634 (WAR ORPHANS' EDUCATIONAL ASSISTANCE ACT)

A child of a person who died of a disease or injury incurred or aggravated while on active duty in the Armed Forces during World War I, World War II, or the Korean Conflict may be eligible for educational assistance under this Act, if certain age requirements are met. In the case of a child who has not reached the age of majority, his guardian must make application for him to the Veterans Administration.

* A charge for a special physical examination is made by the University if a student fails to appear for a physical examination during the period set for this purpose.
† See rule (5) for exception.

PUBLIC LAW 190 (WORLD WAR II GI BILL EXTENSION)

The educational benefits for World War II veterans terminated July 25, 1956, except for persons eligible under special enactment provision.

PUBLIC LAW 550 (KOREAN GI BILL)

To be eligible, a veteran must have been in service between June 27, 1950 and August 31, 1955, no longer be on active duty, and have begun his education within one year after separation. Such students have eight years from separation or January 31, 1965, whichever is earlier, to use their benefits.

Application for benefits to the Veterans Administration should be made as early as possible. V.A. approval should be presented to the veterans adviser from the Office of the Dean of Men during the registration procedure.

PUBLIC LAWS 16, 894, AND 87-815 (VOCATIONAL REHABILITATION)

Disabled veterans desiring vocational rehabilitation under these laws should apply to the Veterans Administration for approval of their training objectives at least sixty days prior to registration.

AIR FORCE ROTC PROGRAM

A brochure describing the Air Force ROTC program in detail is available on request to the Division of Air Science, The George Washington University, Washington, D. C. 20006.

THE TESTING AND COUNSELING CENTER

The Testing and Counseling Center, 718 Twenty-first Street NW., offers services available primarily to students enrolled at the University, and secondarily to high school students and to adults of the community.

The services are designed to assist individuals in the evaluation of their educational and vocational potentialities and objectives, diagnose academic difficulties, provide educational and vocational literature and information, and refer individuals to needed agencies for assistance with problems not handled by the Center.

The Center provides special testing services including: diagnostic tests prescribed by the School of Engineering and Applied Science, admissions tests for the University and for other selected educational institutions and tests for business and industry.

Fees.—For students who are currently registered as degree candidates in the University, the fee is \$3.00; for students currently enrolled in the University but not as degree candidates, the fee is \$3.00; for graduates of the University, \$10; for community college, \$5. Fees for specialized testing are dependent upon the services involved. All fees are payable at the Office of the Center.

THE READING CENTER

The Reading Center, 2016 Eye Street NW., offers individual diagnostic and corrective services for all levels: primary, elementary, secondary, and adult. In addition, group reading improvement classes are conducted on the high school and adult level.

A complete diagnosis includes psychological tests: vision, hearing, and dominance tests; and the various reading and spelling tests. Results are interpreted and a written report is presented in conference with the parents or the individual.

The special reading classes for high school students and adults are offered throughout the year at stated intervals. Emphasis is placed on improvement of vocabulary, speed, comprehension, and study skills. Machines such as the tachistoscope, tachistocolorator, and controlled reader are also used for increasing speed of comprehension.

Fees.—The fee for individual diagnosis is \$45; for individual instruction, \$6 a lesson; for semi-individual instruction, \$5 a lesson; for instruction in small groups with common reading difficulties, \$3.75 a lesson (\$3.25 for students currently registered in the University). All fees are payable in advance at the Office of the Cashier.

THE SPEECH CLINIC

The Speech Clinic, Lisner Auditorium, 730 Twenty-first Street NW., offers diagnostic and corrective work for children and adults with such speech difficulties as stuttering, lisping, cleft palate, cerebral palsy, aphasia, foreign accent, voice, and articulatory problems.

Fees.—There is no charge for the diagnosis. The fee for individual instruction is \$7 an hour; for group instruction, \$1 an hour. Fees are payable at the Office of the Cashier.

STUDENT UNION

The Student Union, 2125 G Street NW., is the center for student life. From the cafeteria on the first floor to the reading room on the fourth floor, it is well planned to meet the students' need for meals, study, recreation, and activities. In addition to the recreation lounge and social lounge the Student Union provides office space for the Student Council and for the other major student organizations.

The Student Activities Office, also in the Student Union, has available information respecting the student organizations and campus events.

DAVIS-HODGKINS HOUSE

The Davis-Hodgkins House, 731 Twenty-second Street NW., is the student center of the School, providing lounges, reading rooms, and student organization offices. The House provides convenient, comfortable facilities for the exchange of ideas and good fellowship.

INTERNATIONAL HOUSE

International House, 2110 G Street NW., is the social center for students from 100+ countries. A series of teas, dances, and other forms of entertainment, and the use of club rooms and lounge enable students to become acquainted and feel at home in the University.

The International Student's Society welcomes as members students from other lands as well as North American students. The Adviser to Students from Foreign Countries, whose office is in International House, is available for advice and aid.

THE PLACEMENT OFFICE

The Placement Office, 2114 G Street NW., provides assistance to students and alumni seeking full-time, part-time, temporary, or permanent employment. The Office maintains a registry of positions available in many fields, both locally and nationally, and refers qualified applicants for consideration. The Office administers the On-Campus Industrial and Government Recruitment Interview Program for seniors and graduate students, in which well over 150 private companies, as well as certain government agencies participate. This program offers outstanding employment opportunities to persons seeking career positions.

Students and alumni interested in placement are asked to register in person at the office and to select from written descriptions of current openings positions for which they wish referral. Those interested in planning careers are invited to study the information on career fields and the brochures of business, industry, and government, which are on display in advance of campus visits by recruiting officers. The services of the Counseling Center are available to students and alumni wishing career guidance.

The Placement Office is open from 9:00 A.M. to 5:00 P.M., Monday through Friday.

STUDENT ACTIVITIES

DIRECTORS OF STUDENT ACTIVITIES

The University maintains the offices of the Dean of Men and the Dean of Women, for the guidance of students in all non-academic phases of student life, such as student activities, social life, and housing. The deans are available for individual counseling concerning personal adjustment to university life.

STUDENT GOVERNMENT

Student Council.—The Student Council, which is elected annually by the Student Body, is responsible for the conduct of student activities.

Committee on Student Life.—The Committee on Student Life is the judicial branch of the student government. It is composed of not more than seven members of the faculty, two of whom are the Dean of Men and the Dean of Women, appointed by the President of the University, and the following members: President of Student Council, an Editor of the *Hatchet*, President of Mortar Board, President of Omicron Kappa, President of the Interfraternity Council, and President of Panhellenic Council. This Committee has the power to review the acts of all student organizations, including the Student Council, and set aside acts that are contrary to established policy and regulations of the University or the Committee. It is granted authority to approve or disapprove the establishment of any proposed organization on campus. No student club or society (except social fraternities, sororities, scholastic or honor societies, religious or professional clubs or societies) organized as a branch or affiliate of a non-George Washington University organization will be recognized by the Committee on Student Life.

ELIGIBILITY FOR STUDENT ACTIVITIES

A student registered in The George Washington University is eligible to participate in nonathletic student activities of the University; however, a student having a cumulative average of less than 2.00 is not eligible to do so.

1. A member of the Band, Dance Production groups, Enosman Debating Society, Glee Club, Cheerleaders, Student Council, Religious Council, Panhellenic Council, Interfraternity Council, Engineers' Council, Student Life Committee, Acheson Hall Council, Catholic Hall Council, Crawford Hall Council, Madison Hall Council, Strong Hall Council, Welling Hall Council, or any publications or activities of any activity.

THE ENGINEERS' COUNCIL

The Engineers' Council is the student governing body for the School of Engineering and Applied Science, composed of elected representatives from each level, and from the graduate student body, from each student organization in the School, the Business Manager of the *Mechanicist*, and the House Manager of the Power Hodgkins House. The purpose of the Council is to provide liaison between the student body of the School and the Faculty, Administration, and Student Government of the University in all matters affecting the general interests and welfare of the student body, the School, or the University. The Council is maintained financially by the Engineers' Council Fee paid by each student in the School, and sponsors the engineers' student magazine, *Mechanicist*; the Annual Engineers' Mixer, Engineers' Ball, and the Annual Christmas Tree Ceremony in the University Yard. Council meetings are open to all students in the School.

The Council acts as the directing body for *Mechanicist*, which is published six times a year and is free to all students in the School. This magazine includes campus and abroad news, a calendar of events, news of the student organizations, and articles on engineering by students and faculty members. The magazine is published by a student Board of Editors and a volunteer student staff.

The control and administration of all student activities are outlined in a separate bulletin.

SPORTS ACTIVITIES

The University is a member of the Southern Conference and the National Collegiate Athletic Association. Its teams participate in intercollegiate contests in football, basketball, baseball, tennis, golf, rifle, sailing, and crew.

The University maintains a complete program of intramural sports for both men and women. The men's program is conducted by the Intramural Council. The Women's Athletic Association and Interscholastic Athletic Board cooperate with the department of Physical Education in conducting the women's intramural and informal extra-mural sports program in tennis, hockey, basketball, rifle, swimming, golf, bowling, and badminton.

PERFORMING ARTS

Students may participate in dance, drama, forensics, and music through the following organizations: Dance Production Groups I, II, III (Modern Dance) and Folk Dance; Enosman Debating Society; Folk Singers Club; University Players; University Glee Club; and University Orchestra. Each of these groups presents programs during the academic year.

With the cooperation of the Curator of Art, an annual student art exhibit is presented.

ANNUAL EVENTS

General Program.—The Student Council sponsors a variety of programs to which students are invited.

Recreation Program.—The Student Council and the Dance Production Groups arrange dances—square, folk, and social—at frequent intervals for all students.

Concert Program.—The Student Council sponsors a concert each semester at which well-known entertainers perform.

Orchestra Series.—The University Orchestra offers a series of concerts throughout the academic year.

Engineers' Mixers.—At the beginning of each semester the Engineers' Council sponsors a program of orientation, good fellowship, and entertainment to introduce new students.

Engineers' Day.—Sponsored by the Engineers' Council to acquaint high school students and their parents with the School of Engineering and Applied Science.

Homecoming.—Scheduled about the middle of the fall semester, Homecoming is a very festive period of the school year. It includes the annual Pep Rally and homecoming show, the homecoming football game, and the homecoming dance.

Religion in Life Program.—Special emphasis is given to the place of religion in contemporary society in this program of events during the fall and spring semesters. It is sponsored by the University Chapel.

Holiday Season.—The University traditionally greets the holiday season with appropriate ceremonies including the lighting of the Christmas tree (given and decorated by the Students of the School of Engineering and Applied Science), the singing of Handel's Messiah, and the observance of a special Christmas service at the University Chapel.

Engineers' Ball.—In the spring the Engineers' Council sponsors the Engineers' Ball, a social event for students and alumni.

May Day.—This is the traditional time for the award of honors in student activities. The Mortar Board and Omicron Delta Kappa announce and present their new members.

The Colonial Cruise.—An afternoon and evening cruise on the Potomac in the late spring. Students, alumni, and faculty picnic, dance, and engage in games and athletic contests.

STUDENT ORGANIZATIONS

HONOR SOCIETIES

Sigma Xi.—A national scientific honor society, the purpose of which is to encourage research and investigation in science, pure and applied. Outstanding graduate students and senior undergraduates are eligible for full membership, and undergraduates who have shown marked ability in research may be elected to associate membership.

Omicron Delta Kappa.—A national fraternity emphasizing leadership in extracurricular activities.

Order of Sorority.—A service honorary society for sophomore and junior men.

Phi Eta Sigma.—A national fraternity, established to encourage and reward high scholarship and attainment, membership in which is limited to those freshman men who attain a scholastic average of at least 3.50.

Sigma Tau.—A national engineering fraternity, the purpose of which is to recognize scholarship and professional attainment.

Tau Beta Pi.—A national engineering honorary fraternity.

PROFESSIONAL ORGANIZATIONS

Institute of Electrical and Electronic Engineers (Student Chapter).

American Society of Civil Engineers (Student Chapter).

American Society of Mechanical Engineers (Student Chapter).

Theta Tau (Gamma Beta Chapter).—A national professional (engineering) fraternity. Membership by invitation to outstanding students who have completed successfully at least the first year in the School of Engineering and Applied Science.

OTHER ORGANIZATIONS

Adams Hall Council, Alpha Theta Nu (scholarship winners), Big Sisters, Calver Hall Council, Cheerleaders, Chess Club, Colonial Boosters, Crawford Hall Council, Cultural Foundation, Foggy Bottom Sports Car Club, Interfraternity Council, International Relations Club, International Students' Society, Inter-sorority Advisory Board, Junior Panhellenic Association, Madison Hall Council, Old Men, Proctor Society, Rifle Club, Senior Panhellenic Association, Station WRCW, Strong Hall Council, Student Council, University Pep Band, Wandering Greeks, Welling Hall Council, Young Democrats Club, Young Republican Club.

SOCIAL FRATERNITIES

Sigma Chi, Kappa Sigma, Phi Sigma Kappa, Sigma Alpha Epsilon, Sigma Phi Epsilon, Phi Sigma Delta, Sigma Nu, Tau Kappa Epsilon, Pi Kappa Alpha, Tau Epsilon Phi, Alpha Epsilon Pi, Delta Tau Delta.

SOCIAL SORORITIES

Pi Beta Phi, Chi Omega, Sigma Kappa, Alpha Delta Pi, Delta Zeta, Kappa Delta, Phi Sigma Sigma, Zeta Tau Alpha, Kappa Kappa Gamma, Delta Gamma, Kappa Alpha Theta, Alpha Epsilon Phi, Sigma Delta Tau.

STUDENT PUBLICATIONS

Amicus Curiae (Law School publication), *The Cherry Tree* (the annual), *The University Hatchet* (weekly newspaper), *The George Washington Law Review*, *Mechelone* (engineer's publication), *The Potomac* (literary magazine), *The Speculum* (medical annual), *The Student Handbook*.

RELIGIOUS LIFE

The University recognizes the contribution that religion makes to the life of its students and encourages them to participate in the various religious organizations of their own choice. Catholic, Jewish, and Protestant bodies sponsor these groups and form a link between the University and the religious community. The advisers of the religious organizations are available for counselling.

UNIVERSITY CHAPEL

The University Chapel is maintained as a nonsectarian service of worship for the university community. The service is held Wednesday of each week from 12:10 to 2:30 o'clock at 1906 H Street NW. Among the guest speakers are representative laymen of Washington. The Director of University Chapel is available for counselling and conference.

RELIGIOUS ORGANIZATIONS

Anglican Student Union, Ezra B. Hillel Foundation, Canterbury Association, General Science Organization, Eastern Orthodox Club, Lutheran Student Association, Newman Club, Student Christian Fellowship, Unitarian Club, United Christian Fellowship, Wesley Foundation, and a religious Council comprised of representatives of all religious organizations.

Courses of Instruction

The courses of instruction in the School of Engineering and Applied Science are listed on the following pages. Courses numbered from 1 through 200 are planned for undergraduate credit, certain courses specified in the Advanced Level options may be taken for graduate credit when arrangements are approved in advance by the instructor and the Dean; those numbered 201 and above are planned for graduate credit and may in certain instances be taken by qualified undergraduate students.

The number of semester hours credit given for the satisfactory completion of a course is indicated in parentheses after the name of the course. Thus, a year course giving three hours of credit each semester is marked (3-3), and a semester course giving three hours credit is marked (3). A semester hour consists of the completion of one fifty-minute period a week of class work or laboratory work for one semester.

Courses offered in other colleges, schools and divisions of the University, are described in the Division of University Students catalogue. Students are referred to that catalogue for information on courses in Mathematics, Physics, Chemistry, the Humanities and Social Sciences, and other subjects of interest.

Applied Science

UNDERGRADUATE

1 Graphical Communication (3)

Principles and methods of graphical communication, sketching, schematic diagrams, isometric graphs, charts and graphs, elements of descriptive geometry, spatial representation.

1 Logic and Method in Analysis (3)

Logic, methods of investigation and reasoning, hypothesis, inference, probability, Analysis in the physical sciences and engineering.

5 6 Finite Mathematics and Statistics in Science I-II (3-3)

Statements, sets and functions, numbers systems, probability theory, linear algebra, convex sets, finite chains, basic statistical principles and methods, applications.

10 General Field Theory (3)

General theory of fields, Laplace and Maxwell equations, conformal mapping, particle motion in fields, potential.

11 General Wave Theory (3)

Basic wave mechanics, wave equations.

12 Electromagnetic Wave Theory (3)

Electromagnetic waves in isotropic media, radiation, resonators, guides, microwaves.

20-30 General Network Theory I-II (3-3)

Network theorems and functions, Laplace transform, Fourier integral, linear and nonlinear systems, stability, nonlinear systems.

2. Network Analysis (3)

Calculation of equations using transformation calculus; poles and zeroes of network functions; correlation of domains; matrix representation; nonlinear circuit analysis.

3. Information Theory (3)

Basic concept of information; sources; processing errors; coding; transmission; capacity; noise.

4. Control Theory (3)

Theory of automatic control systems; steady-state and transient analysis; transfer functions; stability criteria.

5. Analysis Methods (3)

Methods for analyzing problems; use of fundamental principles of mathematics, science and engineering in problem analysis.

6. Introductory Analytical Mechanics I-II (5-5)

Introduction to vector mechanics; statics and dynamics of particles, solids, and fluids; kinematics; behavior of solids and fluids acted upon by forces; Newton's Laws; concepts of stress and strain, with applications.

7. Solid Mechanics (3)

Solid mechanics theory; normal pressure; shear; failure; slope stability; bearing capacity; transient motion behavior.

8. Fluid Mechanics I-II (3-3)

Characteristics and properties of fluids; basic laws of fluid motion; phenomenological laws; mathematical description of incompressible and compressible flows; concepts of streamlines, stream function, circulation, lift, drag; elements of boundary layer theory; similarity; dimensional analysis; laboratory demonstrations and projects.

9. System Dynamics I-II (3-3)

Analysis of linear systems; analogous; transient and steady-state analysis; Lagrange's equations; Hamilton's principle; introduction to gyrokinematics.

10. Analytical Kinematics (3)

Formal study of the motion of constrained and unconstrained rigid bodies.

11. Deformable Body Mechanics (3)

Introduction to two-dimensional theory of elasticity; various of non-polar bodies; bending of thin plates; buckling of columns; beam columns; beams; plates; isotropic fluid mechanics of primitive equations.

12. Earth Science (3)

Formation of and properties of soils and rocks; climatology; hydrology; ground water and water flow; meteorology.

13. Digital Circuits and Systems (3)

Basic concepts of digital programmed systems; mathematical foundations and techniques for digital design; computer logic and circuitry.

14. Introductory Astronomy (3)

Our solar system and surroundings; description of astronomical systems; stars; stellar evolution; elementary celestial mechanics.

15. Thermodynamics (3)

Formal study of fundamental concepts; first and second laws; equations of state; energy; phase transitions.

16. Energy Conversion (3)

Energy forms and states; energy fields; concepts of efficiency; conversion methods; limitations.

17. Heat Transfer Theory (3)

Formal concepts of conduction, convection, radiation; field and potential theory applied to conduction.

99 *Intermediate Comprehensive Evaluation* (0)

Required of all students at the completion of the **Introductory Level** and prior to admission to the **Intermediate Level**. No academic credit; no fee.

101-2 *Materials Science I-II* (4-4)

Structure and properties of materials; mechanical behavior of solids. The atom, bonding, crystal structure, noncrystalline solids, phases, micro- and macro-structure, mechanical properties of solids, relation of structure to behavior, tests. Thermodynamics and kinetics of solids; electrical and magnetic properties. Thermodynamic analysis, reaction rates, diffusion, nucleation and growth, control of structure and properties, response to environment. Conduction, electrical and magnetic phenomena and their relation to structure, domain behavior, structure, insensitive properties.

105-6 *Fundamentals of Measurement Science I-II* (4-4)

Standards, measurements; error, accuracy, and precision; design of experiments.

107 *Statistics in Metrology* (3)

Qualitative and quantitative aspects of measurement, statistical methods, uncertainty and accuracy, corrections, sampling.

110 *Management Analysis* (3)

Principles of schematic, conceptual, and mathematical models; mathematical programming; operations analysis.

111 *Operations Research* (3)

Characteristics and capabilities of operations research, role in decision making, methods and techniques.

112 *Quantitative Techniques* (3)

Theoretical study of mathematical, statistical, and quantitative techniques for management.

121-22 *Structural Theory I-II* (4-4)

Theory and analysis of behavior of structures, model analysis, numerical methods, matrix algebra methods, collapse methods.

130 *Electrical Energy Conversion* (3)

Generalized machine theory, thermodes, thermoelectricity, fuel cells, photovoltaic principles, introduction to electromechanical components, elements of magnetohydrodynamics.

193 *Undergraduate Research* (1 to 3)

Research problems approved by the faculty, with Dean's permission (credit is assigned in relation to work undertaken).

199 *Advanced Comprehensive Evaluation* (0)

Required of all students at the completion of the **Intermediate Level** and prior to admission to the **Advanced Level**. No academic credit; no fee.

GRADUATE

201 *Automatic Control* (3)

Advanced theory of automatic control. Systems analysis, multiple loop systems, nonlinear systems.

211 *Mathematical Methods in Applied Science I* (3)

A course in such topics as functions of complex variables, infinite series, linear vector spaces and matrices, and partial differential equations.

212 *Mathematical Methods in Applied Science II* (3)

Mathematical topics include: introduction to tensor analysis, calculus of variations, finite differences, and integral equations.

- 20 *Advanced Dynamics* (3)
Dynamics of continuous mechanical systems; Lagrange's equations, Hamilton's principles; gyrokinematics; operational methods.
- 21 *Analytical Mechanics* (3)
Fundamental principles, generalized coordinates, variational principles and Lagrange's equations, mechanical systems, Hamilton's equations, theory of small oscillations.
- 22 *Mechanics of Orbits and Trajectories* (3)
Celestial mechanics. Orbits and trajectories in force fields. Dynamics of space vehicles.
- 23 *Mechanics of Continua* (4)
Mechanics of elastic, plastic, and viscous solids, and of fluids; introduction to theory and formulation of basic equations.
- 24 *Nonlinear Mechanics* (3)
Topological and analytical methods in nonlinear mechanics, nonlinear resonance, relaxation oscillations.
- 25 *Theory of Elasticity I* (3)
Introduction to mathematical theory of elasticity, analysis of strain and stress, generalization of Hooke's law, equilibrium equations, Beltrami-Mitchell equations, strain energy functions, torsion, general flexure.
- 26 *Theory of Elasticity II* (3)
Two and three-dimensional boundary value problems in plane elasticity, uniqueness of solutions, stress and multiply connected regions, three-dimensional problems, thermoelasticity, solution of elastic solids, variational methods.
- 27 *Celestial Mechanics* (4)
General equations of motion, Lagrange's planetary equations, disturbing function, Delaunay and Poincaré variables, secular inequalities, lunar theory, precession and nutation.
- 28 *Experimental Stress Analysis* (3)
Applications of the theory of elasticity to the analysis of strain and stress; theory and practice in measurement of strain and dynamic stress; measurement of force, acceleration, and velocity.
- 29 *Photoelasticity and Photoelasticity* (3)
Theory and problems in two and three-dimensional photoelasticity; photoelasticity.
- 30 *Fluid Dynamics I-II* (4-4)
Physical principles of fluid motion, including conservation laws, characteristics and properties of fluids. Navier-Stokes equations and some solutions; Prandtl-Taylor boundary layer theory, turbulence; compressible flow, including wave propagation, friction, and loading effects, normal and oblique shock, sub-, trans-, and supersonic velocities.
- 31 *Problems in Applied Science* (3)
Introduction of problems in engineering and applied science, emphasizing imaginative and systematic application of fundamental principles in engineering, physics, and mathematics.
- 32 *Science of Materials* (4)
Structure of the atomic and microscopic structure of materials to their physical and mechanical properties and their mechanical behavior in applications.
- 33 *Magnetohydrodynamics* (2)
Study of the interaction of electromagnetic and fluid fields. Dynamics of conducting fluids in electromagnetic and magnetic fields.
- 34 *Theory of Plane Structures* (3)
General and modern methods of analysis of statically indeterminate structures, including matrix analysis, theory of plastic collapse.

- 251 *Nonlinear Theory of Structures* (3)
Causes of nonlinear structural behavior; analysis of beams, trusses, and rigid frame deflection theory for arches and suspension bridges.
- 252 *Theory of Structural Dynamics* (3)
Analysis of elastic structures under various dynamic loadings, both steady-state and transient, including vibrations of rigid frames, plates, and thin shells.
- 253 *Theory of Space Structures* (3)
Displacement and force methods of analysis of statically indeterminate structures; cooling matrix analysis, membrane and bending theories for thin shells.
- 260 *Theory of Plates and Shells* (3)
Classical and modern theories of plates and shells, plates and cylindrical shells under different loadings and boundary conditions; equations for plates including shear; axially symmetric shells under small deformations, and their applications.
- 261 *Theory of Plasticity* (3)
Introduction to mathematical theory of plasticity; tensor invariants, theory of conditions of compatibility, constitutive equations, characteristic surfaces for perfectly plastic solids; applications.
- 262 *Theory of Elastic Stability* (3)
Beam-column problems and methods of analysis (including numerical analysis); lateral buckling of beams; buckling of rigid frames, arches, plates, stiffened plates, and shells; torsional buckling.
- 263 *Field Analysis and Potential Theory* (3)
A general study of the theory of potentials including those used to facilitate the solution of problems in electrostatic theory, mechanics, thermodynamics, and gravitation.
- 264 *Electrodynamics* (3)
Presence of moving matter in electromagnetic fields, force and energy in moving systems, relativistic concepts, tensors.
- 265 *Electromagnetic Waves* (3)
Electromagnetic waves in bounded media, radiation from antennas, high-frequency transmission lines, cavity resonators, and microwave devices.
- 266 *Electromagnetic Wave Propagation* (3)
Ground waves; space wave propagation, atmospheric effects, ionosphere; maximum usable frequency; bandwidth.
- 267-68 *Network Analysis and Synthesis I-II* (3-3)
Network theorems; geometry of networks; network functions; positive real functions; realizability conditions of network functions; synthesis of driving point functions, synthesis of transfer functions; filter design; the approximation problem.
- 270 *General Network Analysis* (3)
Solutions of linear integrodifferential equations using transformation calculus; Laplace transformation; Fourier integral, poles and zeros of network functions; construction of pole and frequency diagrams; elements of network synthesis.
- 271 *Active Network Theory* (3)
Analysis of three-terminal networks; matrix representation; reciprocity; stability; passivity; feedback; multiports. Unified theory for all linear three-terminal networks including vacuum tube and transistor circuits.
- 274 *Analysis of Modulation and Noise* (3)
Analysis of Fourier series and integrals of signals and linear networks, modulation and spectra, noise analysis including probability method of determining power spectra.
- 275 *Physical Electronics* (3)
Physical principles underlying operation of various electronic devices including vacuum tubes, electron beam transmitters, and recent solid-state electronic devices.

23. *Thermodynamics* (3)
Conceptual study of first and second laws; ideal and van der Waal gases; kinetic theory of thermodynamics; introduction to statistical thermodynamics and fluid law.
24. *Heat Transfer* (3)
Physical and mathematical concepts of heat transfer phenomena under steady and unsteady conditions, including Stefan-Boltzmann and Planck laws for radiation. Fourier conduction for conduction, transient analysis, and boundary layer theory for convection.
25. *Gas Dynamics* (3)
Theory of gas dynamics including combustion, shock phenomena, dynamics of flow, and heat transfer for high temperature gases.
26. *Hypersonic Fluid Dynamics* (3)
Small disturbance theory, Newtonian theory, constant density solutions, thin shock layer, viscous interactions, free molecule and limited gas flows.
27. *Combustion Processes* (3)
Thermodynamics of combustion, chemical kinetics, flame propagation, combustion of gases and solids, detonation processes.
28. *Reaction Kinetics* (3)
Thermodynamic aspects of kinetics of homogeneous and heterogeneous reactions in gaseous and liquid systems.
29. *Information Theory* (3)
Discrete and continuous systems, ergodic ensembles and random processes; correlation, filtering, prediction, redundancy.
30. *Automata and Self-organizing Systems* (3)
Effectively computable functions and Turing machines, digital computational methods in binary algebra, combinational circuits and their analysis, sequential circuits and their analysis, minimality of automata, networks of automata, artificial intelligence.
31. *Research* (1 to 3)
Research as arranged.
32. *Thesis* (3-3)

Engineering

UNDERGRADUATE

1. *Engineering Planning and Economics* (3)
Analysis, planning, and economics of engineering projects using mathematical and matrix computational methods.
2. *Regional and Urban Planning* (3)
Engineering aspects of regional and urban planning including transportation, water supply and sewerage, public safety and convenience, utilities, and natural resources.
3. *Hydraulic Engineering* (3)
Hydraulic system design including pipe networks, river and channel flow; drainage and irrigation, water supply, and sewerage.
4. *Structural Design I-II* (3-3)
Concepts of structural design; analysis and design of metal and reinforced concrete structures; plastic collapse and ultimate strength analysis.

13-14 *Structural Laboratory I-II* (3-3)

Theoretical and experimental treatment of structural problems.

15 *Structural Dynamics* (3)

Analysis and design of structures under vibration, earthquake, blast, and other dynamic loading; energy methods; applications of matrix algebra.

19-20 *Engineering Electronics I-II* (3-3)

Analysis and design of vacuum tube and solid state devices; voltage and power amplifiers; feedback amplifiers; oscillators; equivalent, relaxation, and computing circuits.

21 *Application of Computers to Engineering Problems* (3)

Machine utilization; number systems; principles of programming, machine language and assembly programming language, Fortran, Algol, Colol; numerical analysis, basic logical circuits.

22 *Digital Techniques* (3)

Automatic programming techniques, self-detecting and correcting codes, logical circuit design, electronic design of digital transistors and magnetic-core circuits, memory systems, analog to digital techniques, wiring diagrams.

23-24 *Computer Laboratory I-II* (3-3)

Use of digital and analog computers; including design, logical circuitry, program analog, operation, maintenance, and troubleshooting.

30 *Applied Thermodynamics* (3)

Vapor cycles, combustion, gas dynamics, equilibrium, multiphase mixtures.

31-32 *Thermal Power I-II* (3-3)

Analysis and design of system components in heat-power, gas and vapor turbine, internal combustion engine, heat pump, and nuclear power systems, including aspects of engineering economy.

35 *Fluid Machinery* (3)

Theory and design of fluid machines; including turbomachinery, torque converter and couplings, and jet machines. Laboratory projects.

49-50 *Precise Electrical Measurements I-II* (3-3)

Electrical measurements, from direct current through radio frequencies; techniques, detectors, bridges; measurement of current, voltage, power, resistance, capacitance, inductance, energy, phase angle, frequency and time; dielectric and magnetic measurements; topics in high frequency measurement including field strength, signal-to-noise ratio, impedance, attenuation.

52 *Introductory Transducers and Instrumentation* (3)

Theory, design, and application of simple transducers; design of instrumentation of one-type systems; analysis and design of simple transducer instrumentation.

53 *Advanced Transducers and Instrumentation* (3)

Analysis and design of transducers and instrumentation for measurement in systems containing multiple quantities of one type or mixtures of types.

54 *Precise Mechanical Measurements* (4)

Techniques for precise measurement of mass, time, weight, density, force, pressure, vibration, acceleration, flow, and viscosity.

55 *Precise Heat Measurements* (4)

Temperature scales; measurement by resistance thermometry, thermocouples, pyrometry, vapor pressure, thermometry; heat transfer quantities and their measurement, calorimeters, flow calorimeters.

56 *Pressure Measurements* (4)

Experimental techniques for quantitative measurement of pressure; working pressure standards, calibration procedures; methods and apparatus for observations near atmospheric pressure, in the high pressure range, and in the vacuum range.

101-2 Communications Laboratory I-II (3-3)

Analysis and design of solutions to problems in communications and information.

103-4 Control Laboratory I-II (3-3)

Analysis and design of electrical, mechanical, pneumatic, hydraulic, and combined control systems.

105-6 Electrical Engineering Laboratory I-II (3-3)

Design projects involving electrical and electromechanical devices and systems.

107-8 Electronics Laboratory I-II (3-3)

Design projects involving electronic devices and instrumentation.

109-10 Energy Conversion Laboratory I-II (3-3)

Analysis and design of solutions to problems in converting energy states and forms.

111-12 Mechanical Engineering Laboratory I-II (3-3)

Design projects involving mechanical, fluid thermal, thermomechanical, and electro-mechanical devices.

115 Reactor Engineering (3)

Reactor physics; types of reactors; moderators; control methods; pile design; reactor economics; design problems.

119 Engineering Research (1 to 3)

Undergraduate research projects as approved by the Faculty, with Dean's permission. (Credit is assigned in relation to the work undertaken.)

GRADUATE**21 Metal Structures (3)**

Structural behavior and failure of metal structures; materials; residual stresses; analysis and design of connections and members; theory of plastic collapse of structures; plastic design.

22 Ultimate Strength of Reinforced Concrete Structures (3)

Modes of failure of reinforced concrete structures; experimental data on failure; ultimate strength concepts for the analysis of beams, slabs and columns.

23 Prestressed Concrete Structures (3)

Structural behavior and failure of prestressed concrete structures; materials; theory, analysis, and design of prestressed concrete structures and members.

24 Geotechnics in Soil Mechanics (3)

Basic geology in the foundation and properties of soils; Boussinesq and Westergaard equations for stresses and deformations in soil masses; analysis of settlement; flow of water in soils; solutions of Laplace-type equations for seepage involving foundations, earth dams, and wells; theory of least action.

25 Theoretical Soil Mechanics (3)

Theories of soil strength and conditions for failure; bearing capacity of footings, pile foundations; theories of lateral earth pressure; stability of slopes; soil dynamics.

26 Foundation Engineering (3)

Properties of soil mechanics and structural mechanics in the analysis and design of spread footings, mat and pile foundations, retaining walls, sheet piling and water front structures.

27 Experimental Structural Analysis (3)

Experimental analysis of truss, rigid frame, plate, and shell structures; large and small deflection models; nonlinearities.

28 Concepts of Structural Design (3)

Abstract seminar relating theoretical and experimental knowledge to the problems of function, form, mechanical behavior, failure, and analysis of structures.

220 *High-frequency Electronics* (3)

High frequency operation of electron tubes and semiconductor devices, transit time, bunching, pulse techniques.

221 *Industrial Electronics* (3)

Gasous tubes and applications; rectifiers; timing circuits; induction and dielectric heating; regulation and control, magnetic amplifiers.

222 *Electronic Measurements in Medicine* (3)

Theory of measurements in biological areas, field and circuit theory as a foundation for measurements, techniques for electronic measurements on biological specimens, problems in medicine and psychology with emphasis on measurements and measuring devices.

223 *Physical Basis for Medical Electronics* (3)

Electrical and acoustical properties of biological material; structural components of biological material as they affect its electrical and acoustical behavior, electrical relaxation phenomena in general and their application to biological material in particular, applications in diathermy and electrocardiography, impedance determination.

230 *Digital Techniques* (3)

Automatic programming techniques, self detecting and correcting codes, advanced logical circuit design, electronic design of digital transistor and magnetic core circuits, memory systems, analog to digital techniques, wiring diagrams.

231 *Digital Circuitry and Systems* (3)

Basic concepts of modern digital programmed systems, mathematical foundation and techniques for logical design of digital circuits, electronic design of computer circuits.

232 *Digital Systems* (3)

The programmed system; system design of digital computers, special purpose digital computers, reliability, data processing techniques, analog to digital and digital to analog techniques.

233 *Microwaves* (3)

Transmission lines; waveguides; antennas; resonators; amplifiers and oscillators; klystrons, magnetrons, traveling wave tubes.

234 *Antennas* (3)

Maxwell's equations, radiation, impedance, directional characteristics, arrays, aperture antennas.

235 *Communication Systems* (3)

Radar, television; ultrahigh frequency systems; navigational aids.

240 *Power Transmission* (3)

Transmission lines, exact and approximate equivalent circuits, standing waves, filtering, protection, radio interference, high voltage, line configurations.

241 *Power Generation* (3)

Steam, hydroelectric, and nuclear plants; fuel cells; magnetohydrodynamics; efficiency, power cycles; stability; load factors; generator swings.

242 *Power Systems* (3)

Substations, transformers, distribution networks, short and open circuit analysis, material components, stability, network analyzers.

270 *Advanced General Metrology* (3)

Topics in the conceptual, physical, and mathematical aspects of measurement, standards, design for precision measurement, and measurement at extreme values.

271-72 *Probability and Statistics of Metrology I-II* (3-3)

Probability distributions, discrete and continuous distributions; sampling; combinatorial analysis; stochastic processes; conditional probability; correlation; analysis of variance; design and analysis of experiments, Latin Square experiments, factorial experiments, block and lattice design.

273 *Microwave Measurements* (3)

Measurement of power, frequency, impedance, wavelength, and attenuation at microwave frequencies. Characteristics and Q of resonant devices.

274 *Precise Optical Measurements* (3)

Optical constants of lens systems; aberration; resolving power; illumination in focal plane; image evaluation, magnification, index of refraction; color and color temperature.

298 *Research* (1 to 3)

Research as arranged.

299-300 *Thesis* (3-3)

Engineering Administration

GRADUATE

284 *Administration of Engineering Contracts* (3)

Study of types of contracts, proposal preparation, evaluating contracts, negotiation, contract extension policies and procedures, appraisal of capabilities of contractors.

285 *Personnel Administration* (3)

Study of personnel functions with emphasis on relationships within organizations which utilize the services of engineers and scientists; employment, health, safety, education, training, financial compensation, union relations, collateral benefits and services, labor relations and personnel research practices in engineering and industry.

286 *Engineering Law* (3)

Legal principles and procedures of interest to engineers, the American Legal System, contracts and specifications, liability of professional engineers, antitrust problems, union relationships, negotiable instruments, patent and proprietary rights, special problems in research and developmental contracts.

287 *Engineering Administration I* (3)

Planning and scientific method in administration. Characteristics of plans; establishment of objectives and goals; forecasting future conditions; determining policies, methods and procedures; organizing the planning; testing of plans. Decision making problem solving; factors in decision, problem formulation, model building, test and saving, testing and control of solutions.

288 *Engineering Administration II* (3)

Part (1) organizing, (2) planning in business and (3) controlling elements of the administrative process. Characteristics of organization, departmentation, authority, responsibility, levels of specialization, coordination, formalization, staff, communication, personnel management, executive leadership, communication, implementation of information systems analysis for effective administration. Principles and methods for evaluation and control of operations.

289 *Engineering Administration III* (3)

(Sequential to EA 211 and EA 212)
Application of principles of administration and scientific method in solving case problems.

290 *Management of Production Processes and Facilities* (3)

Process organization and control of production; forecasting techniques; material management; methods of finding and scheduling production processes; electronic

methods in production control. Organization and administration of the plant engineering function with emphasis on maintenance control programs.

- 254 *Principles and Procedures of Automatic Data Processing Systems* (3)
Logic of computers, arithmetic and control units, computers as systems analysis for data processing applications, systems design, systems economics, relation to scientific decision processes.

- 255 *Administration of Research and Development* (3)
Contemporary practices of administrators of scientific and engineering research and development for the purpose of finding modernities, characteristics, and conceptual schemes; relation of such findings to accepted managerial concepts, and projection of these implications on contemporary managerial hierarchies and organizational structures.

- 261 *Economic Analysis in Engineering Planning* (3)
Important concepts and theories employed in economic analysis of engineering projects. Application of tools and techniques used in various analytical processes. Detailed practice in pursuit of solutions to, and adjustment of, persistent and current problems in this field.

- 263 *Quantitative Techniques of Engineering Administration* (3)
Application of the various quantitative techniques, mathematical, statistical, and other management sciences' techniques to the analysis of engineering administration and the solution of administrative problems by the use of models, theories, and measurements.

- 271 *Operations Research* (3)
Background and application of operations research; history, characteristics, capabilities, administrative considerations, methods and techniques, including construction of conceptual and mathematical models.

- 272 *Problems in Operations Research* (3)
Field experience in operations research on a team basis. Each small group locates a real problem and formulates and solves it by operations research models. Class evaluation of progress.

- 275 *Linear Programming* (3)
The basic computational, theoretical, and applied areas with emphasis on the general linear programming problem; simplex computational procedure; duality; transportation and assignment problems; production scheduling problem; zero-sum two-person games; applications and recent developments.

- 276 *Theory of Games* (3)
Study of mathematical models with applications to the relationships among independent competing entities (persons or organizations in environment of competition, bar exchange, bargaining), selection of optimum strategies, mixed strategies, minimax concept, connections with linear programming and decision functions, two-person and n-person zero and nonzero sum games.

- 277 *Queueing Theory* (3)
Study and analysis of operational systems with variables in arrivals and service, Monte Carlo analysis, optimization methods.

- 285 *Seminar in Administrative Problems* (3)
Individual analysis of complex administrative problems, with group evaluation and discussion. Prerequisite: admission to candidacy and completion of at least 18 semester hours of graduate study.

- 298 *Research in Engineering Administration* (arr.)
Application of established principles to new engineering administrative situations; the development of new knowledge of administration. Creative thinking in engineering administration, initiation of new theories and principles, development of new hypotheses, experimentation, proof of theories and hypotheses.

- 299-300 *Thesis* (3-3)

Alumni and Allied Associations

THE GENERAL ALUMNI ASSOCIATION

The objectives of this Association are to unite the graduates who wish to associate themselves for charitable, educational, literary, and scientific purposes, and to promote the general welfare of the University.

Eligible members are those who have matriculated in any school of the University and who have left the University in good standing, or any person who is or has been a member of the teaching, research, or administrative staff of the University, or of the Board of Trustees of the University. Active members are those eligible members who are current contributors to or life members of The George Washington University General Alumni Association, the Alumni Association of any school of the University, or contributors to the Alumni Support Program.

The Alumni Office is in Bacon Hall, 2000 H Street NW., Washington, D. C. 20006. All alumni are urged to keep the Alumni Office informed of changes of address or occupation and to supply information with regard to their fellow alumni.

THE ENGINEER ALUMNI ASSOCIATION OF THE GEORGE WASHINGTON UNIVERSITY, INC.

The Engineer Alumni Association was organized in 1936 and was incorporated in 1952. It has worked closely with the General Alumni Association since its organization. Its objects are to unite the graduates and Faculty of the School of Engineering and Applied Science in closer fellowship to promote the general welfare of the School of Engineering and Applied Science and of the University at large, to foster activities of the engineering transactions recognized by the University, and to advance the profession of engineering in general.

OFFICERS OF THE ASSOCIATION FOR THE YEAR 1963-64

President.—Thomas Crosswell, B.S. in Eng. 1934
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Secretary.—Derrill C. Rohlf, B.E.E. 1953, M.S. in Eng. 1959
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The University

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The Board of Trustees of the University is composed of the President of the University ex officio and the following persons by election:

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Officers of Administration 1963-64

THE UNIVERSITY

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 Claude Max Farrington, A.M., *Assistant to the President, for Special Projects*
 Oswald Symister Colclough, B.S., LL.B., LL.D., Sc.D., *Provost and Dean of Faculties*
 John Francis Latimer, Ph.D., *Associate Dean of Faculties; University Marshal*
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Martin Alexander Mason, B.S.E., Ing.-Dr., *Dean of the School of Engineering and Applied Science*
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 Herbert Ernest Smith, C.E., Ph.D., *Assistant Dean (Academic) of the School of Engineering and Applied Science*

History and Organization

The George Washington University had its beginning in 1821 as The Columbian College in the District of Columbia. The name of the institution was changed in 1873 to Columbian University and in 1904 to The George Washington University. The debt of the University to George Washington whose name it bears is an intangible one.

George Washington, as President and as private citizen, had urgently insisted upon the establishment of a National University in the Federal City. There he hoped that, while being instructed in the arts and sciences, students from all parts of the country would acquire the habits of good citizenship, throwing off local prejudices and gaining at first hand a knowledge of the practice, as well as the theory, of republican government. To further the materialization of his hopes, Washington left a bequest of fifty shares of The Potomac Company "towards the endowment of a University to be established within the limits of the District of Columbia under the auspices of the General Government, if that government should be so good as to extend a fostering hand towards it." The Congress never extended "a fostering hand." The Potomac Company passed out of existence and Washington's bequest became worthless.

Fully conscious of Washington's hopes, but motivated primarily by a great missionary urge and the need for a learned clergy, a group of dedicated ministers and laymen sponsored a movement for the establishment of a college in the District of Columbia. Inspired largely by the zeal and energy of the Reverend Luther Rice, they raised funds for the purchase of a site and petitioned Congress for a charter. After much delay and amendment, Congress granted a charter which was approved by President Monroe on February 9, 1821. To safeguard the College's non-sectarian character it provided "That persons of every religious denomination shall be capable of being elected Trustees; nor shall any person, either as President, Professor, Tutor or pupil, be refused admittance into said College, or denied any of the privileges, immunities, or advantages therefore, for or on account of his sentiments in matters of religion."

During the entire time when the institution was known as Columbian College, its activities were centered on College Hill, a tract of forty-six and a half acres between the present Fourteenth and Fifteenth Streets extending north from Florida Avenue to somewhat beyond Columbia Road. The Medical School was located downtown. For the better part of the Columbian University period, the buildings of the University were situated along H Street between Thirteenth and Fifteenth Streets. The Medical School group still remains there.

During the last half century the University's present plant has been developed in that section of the old First Ward familiarly known as "Foggy Bottom," between Nineteenth and Twenty-fourth Streets, south of Pennsylvania Avenue. Within a few squares are the White House, the Department of the Interior, the State Department, the World Bank, and many other governmental offices and international agencies. The area is not without its reminders of historic interest to the University. President Monroe who signed the Charter lived at 2017 Eye Street. The first President of the Board of Trustees, the Reverend Obadiah B. Brown, was for fifty years the pastor of a church at Nineteenth and Eye Streets, and Washington

selected Twenty-third and E Streets as the site of the National University he had hoped to see established.

The University as it is now organized consists of Columbian College of Arts and Sciences, which offers work leading to Associate's, Bachelor's, and Master's degrees; the Graduate Council, which offers work leading to the degree of Doctor of Philosophy; the professional schools, which include Medicine; Law; Engineering and Applied Science; Pharmacy; Education; and Government, Business, and International Affairs; the College of General Studies; the Division of University Students; the Division of Air Science; and the Summer Sessions.

The George Washington University is privately endowed and is governed by a self-perpetuating Board of Trustees of which the president is an ex officio member.

The School of Engineering and Applied Science was organized October 1, 1884, is the Corcoran Scientific School of Columbian University and was situated in the University Building then at 15th and H Streets, NW. The school was named in honor of William W. Corcoran, Trustee and President of the Corporation from 1869 to 1893. Day and evening courses were offered in Literature, Science, and Technology and led to the degrees of Bachelor of Science, Civil Engineer, Mechanical Engineer, and Mining Engineer. The school was among the first to accept women for degree candidacy in engineering.

In 1903 the Corcoran Scientific School, the School of Graduate Studies, and the Columbian College were merged into a single Department of Arts and Sciences. Engineering degrees were made graduate.

Administrative changes led to The Washington College of Engineering being initiated in 1905 as one of the several semi-independent undergraduate colleges of the University, each with its own Board of Trustees. The College provided instruction leading to undergraduate degrees in engineering and architecture.

In 1909 the name of the College was changed to the College of Engineering and Mechanic Arts, and the curricula were revised to give the student a thorough understanding of the theory underlying engineering practice. Emphasis was placed in the development of a knowledge of scientific principles upon which the student could build and by which he might solve new problems as they are met in practice.

The name of the School was changed again in 1914 to the College of Engineering and later to the School of Engineering. Architecture was dropped from the curriculum and degrees were limited to the field of engineering. However, the primary emphasis upon principles rather than technology which had characterized the School since 1903 was continued and has remained to this day as one of the important distinguishing features of the School.

In 1962 the name of the School became the School of Engineering and Applied Science.

The School of Engineering and Applied Science

FACULTY AND STAFF OF INSTRUCTION*

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- BENJAMIN CARPENTER CRUICKSHANKS, B.S. in M.E., *Professor Emeritus of Mechanical Engineering*
FREDERICK MORRIS FEIKER, B.S. in E.E., D.Eng., *Professor Emeritus of Engineering Administration*
JACK EDWARD WALTERS, M.S. in M.E., Ph.D., *Professor Emeritus of Engineering Administration*

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Graduate Council: Doctor of Philosophy (Ph.D.)

School of Medicine: Doctor of Medicine (M.D.)

National Law Center:

Law School: Bachelor of Laws (LL.B.)

Graduate School of Public Law: Master of Laws (LL.M.), Master of Comparative Law (M.Comp.L.), and Doctor of Juridical Science (S.J.D.)

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1964-1965

WASHINGTON, D. C. 20006

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Information concerning courses of instruction and the programs of the several colleges and schools will be found in separate issues of the University Bulletin, which are listed on the inside back cover.

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The Graduate School of Public Law
1964-65

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MAY 1964
WASHINGTON, D. C. 20006

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The Calendar for 1964-65

SUMMER TERM:

Registration for all sessions (10 AM-6 PM)	June 8	Mon
First- and 13-week sessions begin	June 9	Tues
Independence Day (holiday)	July 4	Sat
First-session classes end	July 17	Fri
First-session examination period	July 20-22	Mon-Wed
Registration for students attending 2d session only (10 AM-6 PM)	July 23	Thurs
Second session begins	July 24	Fri
Last day of classes	Sept 2	Wed
Second- and 13-week sessions examination period	Sept 3-5	Thurs-Sat

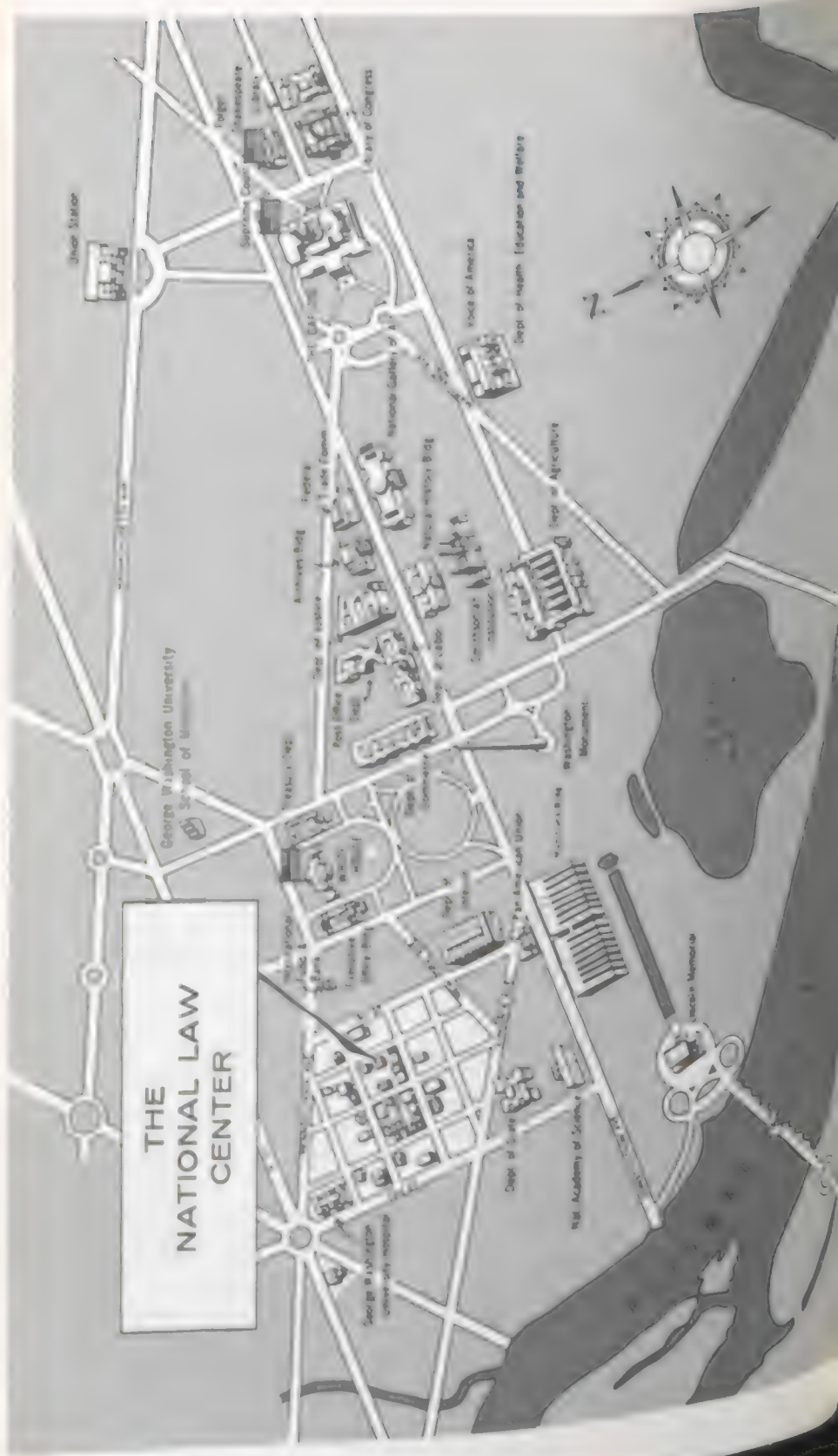
FALL SEMESTER:

Registration		
Application for Feb graduation due in Registrar's Office	Sept 17-19*	Thurs-Sat
Classes begin	Sept 21	Mon
S.J.D. dissertations of Feb candidates due	Oct 2	Fri
Veterans Day (holiday)	Nov 11	Wed
Thanksgiving recess	Nov 26-28	Thurs-Sat
Christmas recess	Dec 23-Jan 2	Wed-Sat
Classes resume	Jan 4	Mon
Last day of fall-semester classes	Jan 16	Sat
Examination period	Jan 18-27	Mon-Wed
Graduation (holiday)	Jan 20	Wed

SPRING SEMESTER:

Registration		
Application for June graduation due in Registrar's Office	Jan 28-30*	Thurs-Sat
Spring semester classes begin	Feb 1	Mon
S.J.D. dissertations of June candidates due	Feb 5	Fri
Winter Convocation (holiday)	Feb 22	Mon
Application for 1965-66 scholarships due	March 1	Mon
Application for 1965-66 Teaching Assistantships due	March 13	Mon
Spring recess	April 14-20	Wed-Thurs
Application for Research Assistantships due	May 1	Sat
Last day of spring semester classes	May 19	Wed
Examination period	May 20-29	Thurs-Sat
Memorial Day (holiday)	May 31	Mon
Graduate Service	June 6	Sun
Commencement	June 6	Sun

* Monday and Friday from 12:00 to 6:00 P.M. Saturday from 10:00 A.M. to 1:00 P.M.



The University

HISTORY AND ORGANIZATION

The George Washington University had its beginning in 1821 as The Columbian College in the District of Columbia. The name of the institution was changed in 1863 to Columbian University and in 1904 to The George Washington University. The debt of the University to George Washington whose name it bears is an intangible one.

George Washington, as President and as private citizen, had urgently insisted upon the establishment of a National University in the Federal City. There he hoped that, while being instructed in the arts and sciences, students from all parts of the country would acquire the habits of good citizenship, throwing off local prejudices and gaining at first hand a knowledge of the practice, as well as the theory, of republican government. To further the materialization of his hopes, Washington left a bequest of \$50,000 to the Potomac Company "towards the endowment of a University to be established within the limits of the District of Columbia, under the auspices of the General Government, if that government should incline to extend a fostering hand towards it." The Congress never extended "a fostering hand." The Potomac Company passed out of existence, and Washington's bequest became worthless.

Fully conscious of Washington's hopes, but motivated primarily by a great missionary urge and the need for a learned clergy, a group of dedicated ministers and laymen sponsored a movement for the establishment of a college in the District of Columbia. Inspired largely by the zeal and energy of the Reverend Luther Rice, they raised funds for the purchase of a site and petitioned Congress for a charter. After much delay and amendment, Congress granted a charter which was approved by President Monroe on February 9, 1821. To safeguard the College's nonsectarian character it provided "That persons of every religious denomination shall be capable of being elected Trustees, nor shall any person, either as President, Professor, Tutor or preceptor, be refused admittance into said College, or denied any of the privileges, immunities, or advantages therefore, for or on account of his sentiments in matters of religion."

During the entire time when the institution was known as Columbian College, its activities were centered on College Hill, a tract of forty-six and a half acres between the present Fourteenth and Fifteenth Streets extending north from Florida Avenue to the old Potomac River. The Medical School was located downtown. For several years beyond Columbia Road. During the Columbian University period, the buildings of the University were situated along H Street between Thirteenth and Fifteenth Streets. The Medical School group still remains there.

During the last half century the University's present plan has been developed in the section of the old First Ward (popularly known as "Foggy Bottom", between Pennsylvania and Twenty-fourth Streets, south of Pennsylvania Avenue. The area is now without its reminders of historic interest to the University. President Monroe

who signed the Charter lived at 2017 Eye Street. The first President of the Board of Trustees, the Reverend Obadiah B. Brown, was for fifty years the pastor of a church at Nineteenth and Eye Streets, and Washington selected Twenty-third and F Streets as the site of the National University he had hoped to see established.

The University as it is now organized consists of Columbian College of Arts and Sciences, which offers work leading to Associate's, Bachelor's, and Master's degrees; the Graduate Council, which offers work leading to the degree of Doctor of Philosophy; the professional schools, which include Medicine; Law; Engineering and Applied Science; Education; and Government, Business, and International Affairs; the College of General Studies; the Division of University Students; the Division of Art Science; and the Summer Sessions.

The George Washington University is privately endowed and is governed by a self-perpetuating Board of Trustees of which the president is an ex officio member.

ACADEMIC STATUS

The George Washington University is accredited by its regional accrediting agency, the Middle States Association of Colleges and Secondary Schools. This is important to students who wish to transfer credits from one institution to another. The University is on the approved list of the American Association of University Women and is a member of the College Entrance Examination Board.

LOCATION

The George Washington University is in downtown Washington, four blocks west of the White House. Within a few blocks are the buildings housing the offices of many of the departments of the Government, including the Department of State, the Department of the Treasury, the Department of Justice, the Department of the Interior, the Department of Agriculture, the Department of Commerce, and the Department of Labor. Also readily accessible are the Capitol, the Library of Congress, the National Archives, the Supreme Court, and other federal courts.

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Louis Harkey Mayo, B.S., LL.B., J.S.D., *Dean of the Graduate School of Public Law*
William Wallace Kirkpatrick, A.B., LL.B., *Assistant Dean of the Law School*
Edward Andrew Putts, A.B., LL.B., *Assistant Dean of the Law School*

THE FACULTY AND STAFF OF INSTRUCTION*

EMERITI

CARVILLE DICKINSON BENSON, *Professor Emeritus of Law in Residence*
A.B. 1910, Johns Hopkins University; LL.B. 1917, S.J.D. 1926, Harvard University
GORDON SYMISTER COLCLOUGH, *Professor Emeritus of Law; Dean of Faculties Emer.*
B.S. 1921, United States Naval Academy; LL.B. 1923, Sc.D. 1961, The George Washington University; LL.D. 1949, Dickinson College
CHARLES SAGER COLLIER, *Professor Emeritus of Law*
A.B. 1911, LL.B. 1917, S.J.D. 1921, Harvard University
ROBERT MCKINNEY CORRIE, *Professor Emeritus of Law*
Ph.D. 1901, University of Wisconsin; J.D. 1904, University of Michigan
GORDON BOWDOIN CRAWFORD, *Professor Emeritus of Law*
A.B. 1911, University of the South; LL.B. 1916, Georgetown University
JAMES OLIVER MURDOCK, *Professor Emeritus of Law*
Ph.D. 1914, University of Chicago; LL.B. 1914, Harvard University
LEON LEBOY NEWMYER, *Professor Emeritus of Law*
LL.B. 1920, The George Washington University

* Includes Assistant Professors, Associate Professors, Assistant Professors, and the Librarian of the Law School. The President of the University, the Dean of the Law School, the Director of the Graduate School of Public Law, the Director of the National Law Center, and the Director of the National Law Center are also members of the Faculty and Staff of Instruction for the academic year 1964-65.

ACTIVE

- RICHARD ALLEN, *Associate Professor of Law, Director of Mental Competency Study*
A.B. 1946, LL.B. 1949, Washington University; LL.M. 1963, University of Michigan
- JOEL BARLOW, *Professor of Lectures in Law*
A.B. 1929, Amherst College; LL.B. 1933, The George Washington University
- EDWARD ARTHUR BEARDS, *Professional Lecturer in Law*
LL.B. 1936, Georgetown University; Judge, District of Columbia Court of General Sessions
- HUGH YANCEY BERNARD, JR., *Lecturer in the Law Library*
A.B. 1941, University of Georgia; B.S. in L.S. 1941, Georgetown University; J.D. 1961, The George Washington University
- FLEMING, BOHMER, *Professional Lecturer in Law*
A.B. 1936, Wellesley College; LL.B. 1939, Duke University
- THOMAS HAYWARD BROWN, *Associate Professional Lecturer in Law*
Member of the bar of the District of Columbia
- GEORGE DAVIS CARP, *Associate Professional Lecturer in Law*
B.S. 1939, University of Pennsylvania; LL.B. 1940, The George Washington University; LL.M. 1951, Georgetown University
- JOHN CHIND, JR., *Assistant Professor of Law in the Faculty of the Graduate School of Public Law, Assistant Director of the Government Contracts Program*
A.B. 1955, University of Wisconsin; LL.B. 1956, The George Washington University
- THOMAS ARTHUR CLINAN, JR., *Assistant Professor of Law*
B.S. 1961, United States Coast Guard Academy; LL.M. 1961, The George Washington University
- MANUEL FREDERICK COHEN, *Professional Lecturer in Law in the Graduate School of Public Law*
B.S. 1941, Princeton College; LL.B. 1946, Princeton Law School
- SHELDON STANLEY CHYEN, *Professional Lecturer in Law*
A.B. 1939, J.D. 1941, The George Washington University
- HUGH BAKER COX, *Professional Lecturer in Law*
A.B. 1936, University of Nebraska; A.B. 1938, V.C.L. 1939, Oxford University
- JAMES FORRESTER DAVISON, *Professor of Law*
A.B. 1921, LL.B. 1923, Yale University; LL.M. 1924, S.D. 1929, Harvard University
- *ROBERT GALLAGHER DAVIN, JR., *Professor of Law*
A.B. 1935, Ph.D. 1941, Syracuse University; LL.B. 1936, The George Washington University
- WEATHER WHITE DUNNAN, *Professional Lecturer in Law*
A.B. 1931, LL.B. 1933, Harvard University
- JUSTIN LINDSEY ESKERTON, *Professional Lecturer in Law*
A.B. 1929, LL.B. 1931, The George Washington University
- PASCAL ELLIOTT FLORENCE, *Associate Professional Lecturer in Law*
B.S. 1955, Case Institute of Technology; A.M. 1956, The George Washington University
- MONROE HENRY FREDERMAN, *Associate Professor of Law*
A.B. 1931, LL.B. 1934, LL.M. 1936, Harvard University
- WILLIAM THOMAS FRYER, *Professor of Law*
A.B. 1932, LL.B. 1934, The George Washington University; LL.D. 1956, Yale University
- SAMUEL VAUGHAN GORJIAN, *Lecturer in Law in the Graduate School of Public Law*
A.B. 1934, Stanford University; LL.B. 1936, Harvard University
- CHARLES JAMES GORDON, *Professional Lecturer in Law*
B.S. 1931, United States Military Academy; LL.D. 1956, The George Washington University
- WILLIAM WOODRUFF GORDON H., *Lecturer in Law in the Graduate School of Public Law*
LL.B. 1936, University of Utah
- DAVID FRANKLIN GREEN, *Associate Professor of Law*
A.B. 1936, Harvard University; LL.B. 1939, University of Virginia
- HAROLD PAUL GREEN, *Professor of Law in the Faculty of the Graduate School of Public Law*
A.B. 1931, J.D. 1936, University of Chicago
- JOSUAH REED HAMMOND, *Professor of Law*
A.B. 1936, Wellesley College; LL.B. 1939, Duke University

* On leave of absence (academic year 1964-65).

* On leave of absence (academic year 1963-64).

JOHN JAMES HARRIS, *Professor of Law in the Faculty of the Graduate School of Public Law*

1912-1913, Cornell University; LL.B. 1913, S.J.D. 1915, Rochester Law School; LL.M. 1918, The George Washington University

1918-1919, HARRY, JR., *Professorial Lecturer in Law*

1912-1913, New York Military Academy; LL.B. 1916, Harvard University; Judge, United States District Court for the District of Columbia

1916-1917, HARRY, *Professorial Lecturer in Foreign Medicine*

1918-1919, University of Vermont; LL.B. 1919, The George Washington University

1919-1920, HARRY, *Professorial Lecturer in Law*

1912-1913, Cornell University; LL.B. 1913, LL.M. 1916, The George Washington University

1913-1914, HILL, *Lecturer in Law in the Graduate School of Public Law*

1912-1913, LL.D. 1916, Some University of Law

1913-1914, HILL, *Professor of Law*

1912-1913, Cornell University; LL.B. 1913, LL.M. 1916, Harvard University

1913-1914, JACKSON, *Assistant Professor of Law*

1912-1913, University of Pennsylvania; LL.B. 1913, The George Washington University

1913-1914, KATYAN, *Lecturer in Law in the Graduate School of Public Law*

1912-1913, LL.B. 1916, New York University; LL.M. 1917, Harvard University

1913-1914, KATYAN, *Associate Professor of Law*

1912-1913, Cornell University; LL.B. 1913, New York University

1913-1914, KATYAN, *Clerk of the Trial Practice Court*

1912-1913, LL.B. 1913, The George Washington University

1913-1914, KATYAN, *Professor of Law, Assistant Dean of the Law School*

RALPH CLARKE NASH, JR., *Associate Professor of Law, Director of the Graduate Contracts Program*

A.B. 1944, Princeton University; J.D. 1947, The George Washington University
 LESTER NIMICK, *Professorial Lecturer in Law in the Graduate School of Public Law*
 U.S.S. 1934, City University of New York; LL.B. 1937, Brooklyn Law School
 CHARLES BERNARD NUTTING, *Professor of Law, Administrator of the National Center*

A.B. 1927, J.D. 1930, State University of Iowa; LL.M. 1931, S.J.D. 1933, Harvard University; LL.D. 1935, University of Pittsburgh; LL.D. 1937, Georgia College; LL.D. 1938, State of Georgia; LL.D. 1940, Dickinson College of Law

EDWARD ANDREW POTTS, *Associate Professor of Law, Assistant Dean of the Law School*

A.B. 1929, University of Michigan; LL.B. 1930, The George Washington University

BERNARD RAMUNO, *Lecturer in Law in the Graduate School of Public Law*

A.B. 1931, City University of New York; LL.B. 1933, A.M. 1937, Columbia University

IRVIN HARRIS RIMES, *Associate Professorial Lecturer in Law*

B.S. 1914, University of Illinois; J.D. 1916, The George Washington University

LEWIS AARON SCHILLER, *Assistant Professor of Law*

A.B. 1933, LL.B. 1935, University of Texas; A.M. 1936, Franklin School of Law and Political Science

DAVID EARL SIDDLESON, *Associate Professor of Law, Faculty Editor of Case & Comment*

A.B. 1931, LL.B. 1933, University of Pennsylvania

DAVID JAMES SHARPT, *Associate Professor of Law*

A.B. 1930, University of North Carolina; LL.B. 1933, Harvard University

GEORGE WALTER SHERBURN, *Lecturer in Law in the Graduate School of Public Law*

LL.B. 1931, The George Washington University

DUDLEY GRAHAM SKINKER, *Associate Clerk of the Trial Practice Court*

LL.B. 1930, The George Washington University

JAMES EDWARD STARRS, *Associate Professor of Law*

LL.B., A.B. 1930, St. John's University; LL.M. 1933, New York University

ORVILLE HANSLER WALKORN, *Professor of Law*

A.B. 1925, Franklin and Marshall College; LL.B. 1926, University of Pennsylvania; J.D. 1928, Georgetown University

LOUIS SAMUEL WALLERSTEIN, *Lecturer in Law in the Graduate School of Public Law*

B.S. in B.S. 1937, City University of New York; LL.B. 1938, University of Baltimore

DAVID BENSON WEAVER, *Professor of Law*

A.B. 1933, Ohio Wesleyan University; LL.B. 1935, Western Reserve University

GREEN FARY WORTHEN, *Professor of Law*

B.S. 1931, University of Maryland; LL.B. 1933, The George Washington University

ELLYE JENSON, *Lecturer in Law in the Graduate School of Public Law*

B.S. 1930, University of Wisconsin; LL.B. 1934, Northwestern University

CHARLES JAMES FINN, *Professorial Lecturer in Law*

A.B. 1917, LL.B. 1920, Franklin University; LL.M. 1931, S.J.D. 1933, Georgetown University

ASSISTANTS*

HENRY IRVIN LAZAROW, *Teaching Fellow in the Graduate School of Public Law*

A.B. 1930, University of Pennsylvania; LL.B. 1933, Harvard University

THOMAS STANLEY LYNN, *Teaching Fellow in the Graduate School of Public Law*

A.B. 1930, Columbia University; LL.B. 1933, Harvard University; LL.M. 1935, New York University

BENJON LOUIS RAIME, *Teaching Fellow in the Graduate School of Public Law*

A.B. 1930, Bowdoin University; LL.B. 1933, University of Michigan

* For the academic year 1963-64

The Law School

HISTORY

The Law School, the oldest in the District of Columbia, was established in 1865 as a formal program of two years of study. This was largely through the efforts of Reverend George Whitefield Simson, President of Columbian College, whose action resulted in the purchase of a separate building for holding law classes. This building had belonged to Trinity Church of which Francis Scott Key had been Senior Pastor. It was occupied by the Law School until 1884.

Sixty graduates, from twenty-two of the then thirty-seven states, received degrees in 1867. The School continued to have a student body and a faculty which reflected the fact that it was at the seat of our nation's government. Associate Justices David J. Brewer and John Marshall Harlan of the Supreme Court of the United States were among the prominent members of the bench and bar who served as lecturers.

In 1877, one year after the first such program was adopted in the United States, the Law School instituted a course leading to the degree of Master of Laws. In 1893 the School took part in the organization of the Association of American Law Schools. Later, women students were admitted and in 1916 the first woman took a regular course in law was graduated.

The Law School moved into its present quarters in 1925, marking the occasion with an honorary address by Roscoe Pound. The building, Sackson Hall, is named for the Admiral Charles H. Sackson, President of the University from 1910 to 1917.

Since just quarter-century the Law School has developed its course and seminar programs and consideration for the needs of first-degree and graduate students. The School of Juridical Science was instituted in 1940. The needs of foreign students who come to our country and who require additional preparation for law in the United States resulted in the creation of programs for the degrees of Master of Comparative Law in 1946 and Master of Comparative Law (American Law) in 1950.

The Law School, which had had an important place in legal education in the District of Columbia since 1865, was merged in The George Washington University in 1964.

Programs of special research and study, such as the Independent Patent, Trade-Mark, and Copyright Research Institute, give richness to the basic curriculum of the Law School.

Since that time, the National Law Center of The George Washington University, including the Law School and the Graduate School of Public Law, was organized in 1967.

LOCATION IN THE NATION'S CAPITAL

The prime significance of the location of the Law School in the Nation's Capital, at the heart of the law in action, both American and international. The work of the Law School in this environment, presenting a unique opportunity for observation and study of federal agencies—judicial, legislative, and administrative. Readily

accessible are the Supreme Court of the United States, the federal trial and appellate courts of the District of Columbia, and, in addition, federal courts of special jurisdiction, such as the United States Court of Claims, the United States Court of Customs and Patent Appeals, the Tax Court of the United States, and the Court of Military Appeals. Current federal legislation can be studied as it is considered by Congressional committees as it comes up for debate on the floors of the House of Representatives and the Senate. With respect to the federal administrative agencies, students here in Washington have matchless opportunities for study and observation. They can attend informal and formal hearings of these agencies and can obtain from the docket sections complete records of administrative adjudication in specific cases. Illustrative of such federal agencies are the Interstate Commerce Commission and the Civil Aeronautics Board in the field of transportation; the Federal Trade Commission in the field of trade regulation; the Securities and Exchange Commission in the field of security issues and corporate finance; the National Labor Relations Board in the field of labor-management relations; the United States Patent Office in the field of patent law; the Federal Power Commission in the field of water, natural gas, and electric power; and the Federal Communications Commission in the field of radio and television.

Supplementing these environmental advantages of law in action are the exceptional research library collections in the Library of Congress, in the various departments of the Federal Government, and in the libraries of the headquarters of national and international organizations located in Washington. The notable library of the Carnegie Foundation for International Peace has been acquired by The George Washington University for use of research students in international and comparative law, with respect to which Washington has come to be called "The Capital of the World."

The years of residence at law school are years of participation in the life of the community, which in the case of The George Washington University Law School is the government of the United States. As a consequence, the study of law takes on added meaning, whether the goal be government service or practice, general or specialized, and whatever the community in which the student plans to practice.

OBJECTIVES

The primary purpose of the Law School is to prepare men and women to meet the needs of society in the many fields of law, public and private. These needs are not only for technical skill but also for responsible leadership in the development of law and the administration of justice. In fulfilling these responsibilities the Law School conducts (1) a program of study in preparation for the practice of law, whether it be general practice, specialized practice, or government service; (2) the publication of a law journal containing the results of research in public law; and (3) a series of student professional cooperative activities. The Graduate School of Public Law supplements this program with study and research on the graduate level for foreign as well as for American students and with a continuing legal education program for members of the bar.

THE BACHELOR OF LAWS PROGRAM

The wide geographical distribution of the students who come to the Nation's Capital to study law (see *Summary of Registration*, page 25) makes for a truly national law school. Students from almost every state in the Union here join students from several foreign countries in their legal training. Last year over 320 colleges and

courses were represented. The basic curriculum leading to the Bachelor of Laws degree is addressed to the development and application of legal principles, skills, and traits which are indispensable to the equipment of a lawyer for professional responsibility and leadership in modern society. It includes, first and foremost, the traditional core of legal education, namely, the study of legal materials—judicial, statutory, and administrative—and instruction in the understanding and technique of their use. It also includes the study of the nature and purpose of law, the history of the Anglo-American legal system, and the history and standards of the legal profession; courses in the skills of legal research and legal writing; elementary training in trial and appellate practice; and, through the medium of seminars, experience in group thinking of legal problems.

ENTERING CLASSES

The curriculum is organized so that students may enter the Law School at the beginning of the fall or spring semester of the academic year, but not at the beginning of the summer term.

ENTRANCE REQUIREMENTS

For the Degree of Bachelor of Laws—A Bachelor of Arts or equivalent degree from a correlated college or university of satisfactory quality of work; and an acceptable distribution of courses are required. Eligibility is based on personal and academic records and on the result of the Law School Admission Test. No applicant who is ineligible to return in good standing to a previously attended institution. From the applicants, a selection is made by the Committee on Admission.

Information concerning the Law School Admission Test may be obtained from the Board of Law Schools or from the Educational Testing Service, 20 Nassau Street, New York, N. Y. or Box 20906, Los Angeles, Cal. 9. The test is administered at various locations in the United States in February, April, August, and November each year. Application blanks and fees must be received by the Educational Testing Service at least two weeks before the date of the test. It is not necessary that an application for admission to the Law School be made prior to taking the test.

ADVANCED STANDING

Advanced standing toward the degree of Bachelor of Laws may be granted for law work previously completed in other law schools which are members of the Association of American Law Schools or are approved by the American Bar Association. Law school credits will not be recognized in excess of those which might be earned during the period in this Law School. Advanced standing will not be granted for law work already counted toward the degree of Arts or other professional degree.

UNCLASSIFIED STUDENTS

Students who do not wish to advance through toward the Bachelor of Laws degree may, at the discretion of the Dean, be admitted as unclassified students. Such students are eligible for transfer to the other law school.

and is limited course. A special section of the court is devoted exclusively to the trial of patent cases. Experience in preparing and arguing appellate court cases is available through the course in Appellate Practice and Procedure and through the Case Club Competitions.

Patent Law—The following courses are particularly suggested for students interested in patent law: United States Trade Practices, Patent Law, Patent Office Practice, Patent Trial Practice, Patent Interference Practice, Patent Licensing, International and Comparative Patent Law, and Federal Antitrust Laws. Additional courses recommended are Advanced Topics in Patent Law and Trade Regulation Seminar.

Law Library—Following is the curriculum for students beginning in the fall semester. Arrangements are made to meet the needs of students beginning in the spring semester.

DAY DIVISION

FIRST YEAR

FALL SEMESTER		SPRING SEMESTER	
Courses	Semester Hours	Courses	Semester Hours
Constitutional Law	4	Constitutional Law	4
Criminal Law and Procedure	4	Contracts II	4
Property	4	Real Property	4
Legal Research and Legal Systems	2	Torts II	2
Legal Writing	2		
Total	14	Total	14

SECOND YEAR

FALL SEMESTER		SPRING SEMESTER	
Courses	Semester Hours	Courses	Semester Hours
Administrative Law	4	Administrative Law	3
Contracts I	4	Contracts II	4
Property	4	Real Property	4
Legal Research and Legal Systems	2	Torts II	2
Total	14	Total	14

THIRD YEAR

FALL SEMESTER		SPRING SEMESTER	
Courses	Semester Hours	Courses	Semester Hours
Administrative Law	2	Elective	12
Legal Research and Legal Systems	10		
Total	12	Total	12

EVENING DIVISION

FIRST YEAR

FALL SEMESTER		SPRING SEMESTER	
Courses	Semester Hours	Courses	Semester Hours
Contracts I	4	Contracts II	4
Criminal Law and Procedure	4	Criminal Law and Procedure	4
Property	4	Torts II	2
Legal Research and Legal Systems	2		
Total	14	Total	10

SECOND YEAR

FALL SEMESTER	Semester Hours	SPRING SEMESTER	Semester Hours
Civil Procedure	4	Constitutional Law	4
Real Property	4	Elective	6
Elective	2		10
Total	10	Total	10

THIRD YEAR

FALL SEMESTER	Semester Hours	SPRING SEMESTER	Semester Hours
Administrative Law	3	Elective	6
Elective	7		10
Total	10	Total	10

FOURTH YEAR

FALL SEMESTER	Semester Hours	SPRING SEMESTER	Semester Hours
Final Practice Court	2	Elective	10
Elective	8		10
Total	10	Total	10

THE LAW REVIEW

The *George Washington Law Review*, published by the University, is edited and managed by students of the Law School under the supervision of a faculty adviser. It is devoted exclusively to state and federal public law. The location of the University in the National Capital, where the primary sources of federal public law may be observed in operation, affords an unparalleled opportunity for specialization in this field.

The student staff participates in a two-year *Law Review* program. The editorial staff is selected from among those students who have successfully completed the first year of *Review* work. Students receive four hours of academic credit for the two-year program.

THE STUDENT BAR ASSOCIATION

Every student in the Law School is a member of the Student Bar Association, which is organized to enable students to become better acquainted with problems of the profession, to foster professional ideals, and to bring about closer contact with members of the profession engaged in active practice of the law. The work of the Student Bar Association is carried on by various committees and by group and general meetings of a professional and social nature. From time to time lectures are given by outstanding authorities on legal and professional problems.

An important activity is the Van Vleck Case Club Competition, which provides an opportunity for training in appellate advocacy. First and second-year students participate as contestants before courts composed of members of the Faculty and the local bar. Senior law students of the Case Club also sit as judges. The final argument is held before a court composed of distinguished federal judges.

The Legal Aid Program is under the joint sponsorship of The George Washington University Student Bar Association and the Junior Bar Section of the District of Columbia Bar Association. Participating students assist court-appointed attorneys in the preparation of cases for trial or appeal. Qualified second- and third-year students are eligible for participation in the program.

In the ranking of member associations by the American Law Student Association, the George Washington University Student Bar Association has received first place and second place twice in past years.

ORDER OF THE COIF

The Order of the Coif, a national honor society with chapters in over forty law schools, aims "to foster a spirit of careful study and to work in a fitting manner those who have attained a high grade of scholarship." The George Washington University Chapter was established in 1926. Members are elected each year from the highest-achieving 10 per cent of the graduating class of the Law School.

Graduate School of Public Law

FACULTY AND STAFF OF INSTRUCTION*

H. Mayo, *Dean*

Lecturers: J. F. Dawson, R. C. Dixon, Jr., H. P. Green, L. J. Harp, Robert Keener, May, I. S. Mayfield, A. S. Miller, C. R. Noyes, G. E. Weston
Adjunct Lecturers: Justus Barth, Fleming Bailey, M. F. Cohen, S. S. Cohen, H. B. May, W. W. Dumas, Murlach Heath, J. A. McIntire, Lester Natch
Professors: R. C. Allen, R. C. Nash, Jr., E. A. Potts
Professorial Lecturer: H. J. Lehman
Professor: John Collins, Jr.
Associate Professor: S. A. Gaskins, W. W. Gombosi, J. D. Holt, A. H. Kaplan, V. A. Kleinfeld, May, Michael, Bernard Ramoche, G. W. Shalhoup, L. S. Wallenstein, Flynn

HISTORY

The present concept of a graduate school of public law in the City of Washington developed as far as World War II, when a group of law teachers then in private practice discussed the matter in several sessions. The idea was revived in 1945 when the Trustees of The George Washington University adopted a plan for the establishment of a Graduate School of Public Law. The President of the University, the Board of Trustees, and the Faculty approved the plan. The President of the University, the Board of Trustees, and the Faculty approved the plan. The President of the University, the Board of Trustees, and the Faculty approved the plan.

resolution commending "the Law Center as being worthy of the strong support of the entire University . . . and of all those who believe that the Law Center offers an opportunity for service of the highest order." During succeeding years the Center was further refined and it was determined that the Center should include a Graduate School of Public Law with its own Dean and Faculty. In 1972 the Trustees established the School.

OBJECTIVES

The Graduate School of Public Law has two basic objectives: (1) *to enhance the quality of the educational process by which lawyers are trained to cope with increasingly complex problems of public law, including government-industry relationships and international affairs, and* (2) *to serve as an independent analysis for the purpose of examining and evaluating selected legal policy issues of significant contemporary and long range interest.* The first objective is implemented primarily through the graduate curriculum of courses and seminars while the second is achieved through continuing research study projects. Both of these objectives are covered by the same autonomous programs such as that in Government Contracts.

PROGRAMS OF STUDY

DEGREES OF MASTER OF LAWS AND DOCTOR OF JURIDICAL SCIENCE

The administration of justice under law is a matter so vast and complex that some graduates feel the need for further study to broaden and deepen their understanding of the law. Others wish to extend their study into rapidly developing special fields. Graduate instruction, leading to the degree of Master of Laws, enables qualified students to attain one or both of these objectives.

The student may register as a candidate for the regular Master of Laws degree in which case he has essentially full discretion in the choice of courses and seminars or he may register for a Master of Laws program in one of the selected fields of specialization: (1) Government Prosecution Law, (2) Administrative Law, (3) Labor and Trade Regulation Law, or (4) Foreign Trade and Investment Law in which event certain courses are required or recommended. Graduates of these selected Master of Laws programs have an appropriate notation concerning these selected areas on the field of specialization. Additional information concerning these selected Master of Laws programs may be obtained from the Dean.

The degree of Doctor of Juridical Science is offered for selected students whose aim is to extend and further their studies by pursuing original research in law.

Graduate work is available to evening as well as day students for the convenience of lawyers in private practice and in government service.

CONTINUING LEGAL EDUCATION

An important part of the graduate program is the offering of courses in various fields of the law for members of the bar not interested in degree candidacy but desirous of keeping abreast of current developments. The offerings in the field of governmental regulation provide opportunities for specialization. Although graduate

courses are particularly suitable, other elective courses may be taken in appropriate cases. Members of the law taking graduate work in this way register as unclassified students or as Continuing Legal Education students.

PROGRAMS FOR FOREIGN LAWYERS

To meet the needs of lawyers from countries whose legal systems are not based on the English law, two additional programs of study have been made available. For those who wish to acquire an understanding of our system which will permit them to work with its materials and procedures after returning to their own countries, the program for the degree of Master of Comparative Law permits a selection of regular courses taken with undergraduate and graduate students. Foreign lawyers who wish to practice in a common law jurisdiction may enroll in the program for the degree of Master of Comparative Law (American Practice), a more intensive program of courses appropriate to this goal.

RESEARCH IN PUBLIC LAW

Research in public law is conducted under the supervision of members of the Faculty of the Graduate School of Public Law. The purpose of this research is to furnish means for training specialists in public law, either as government lawyers or as lawyers representing individuals or corporations in cases in which the Government is a party, and to assist in the analysis, clarification, formulation, and improvement of public law, substantive and procedural.

Candidates for graduate degrees and specially qualified persons may pursue this work.

UNCLASSIFIED STUDENTS

A member of the bar or a person, not a member of the bar, who is a graduate of a member school of the Association of American Law Schools or a law school approved by the American Bar Association may, at the discretion of the Dean, be admitted as an unclassified student.

Unclassified students participate in the work of the course and take examinations. Courses taken by unclassified students will not be credited toward degrees at this School.

CONTINUING LEGAL EDUCATION STUDENTS

A completed admission and registration procedure is used for members of the bar who desire to take courses on a noncredit basis. Continuing Legal Education students may not participate in student activities or benefit from the special privileges of the University.

ENTRANCE REQUIREMENTS

Candidates for graduate degrees must be proposed by the Faculty of the Graduate School of Public Law.

For the Degree of Master of Laws—A Bachelor of Arts or equivalent degree from an accredited college or university* and a Bachelor of Laws or equivalent degree from

*The Dean is authorized to make exceptions in appropriate cases.

a law school which is a member of the Association of American Law Schools or is approved by the American Bar Association are required. Candidates for admission must have attained a *B* average on all work done for the Bachelor of Laws degree, except that at the discretion of the Faculty of the Graduate School of Public Law, an applicant otherwise eligible may be accepted upon providing evidence (such as high class standing, *Law Review* experience, positions held, and professional achievements) of ability to do graduate level work. Advanced standing will not be granted for credits earned while a candidate for the first degree in law or for credits earned at another law school. Credits earned as an unclassified student will not be creditable toward meeting the requirements for the degree unless specific provision therefor is included in the letter of admission.

For the Degree of Master of Comparative Law and Master of Comparative Law (American Practice).—The following are required: (1) the successful completion of and graduation from a course in arts, philosophy, letters, or sciences, equivalent to graduation from a gymnasium, lycee, or lycce; and (2) graduation in law from a recognized foreign university where training was in Civil Law.

For the Degree of Doctor of Juridical Science.—The following are required: a Bachelor of Arts or equivalent degree from an approved college or university; a Bachelor of Laws or equivalent degree, earned with high rank, from a law school which is a member of the Association of American Law Schools or is approved by the American Bar Association; and outstanding capacity for scholarly work in the field of law.

REQUIREMENTS FOR THE DEGREES

MASTER OF LAWS

To be recommended for the degree of Master of Laws (LL.M.) the student must have completed a residence period of not less than two semesters. Such residence should normally be continuous. All requirements for the degree must be completed in this School and in a period not exceeding two years after registration for work for the degree. The student must have completed, with a minimum average of 75-20 semester hours in courses listed in the law curriculum as graduate courses except that in appropriate cases other courses may be approved for inclusion in the program of study if not previously taken.

To be recommended for the degree of Master of Laws (LL.M.) in one of the selected fields of specialization (Government Procurement Law, Administrative Law, Patent and Trade Regulation Law, or Foreign Trade and Investment Law) 20 semester hours are also normally required. It is, however, at the time of initial registration for one of the specialized Master of Laws programs it appears advisable to require additional work in order to justify the awarding of the degree (as, for example, when the candidate lacks the basic course in Administrative Law or a course in Jurisprudence or both), then the Faculty may require the completion of additional work (not to exceed 4 hours).

* The Dean is authorized to make exceptions in appropriate cases.

MASTER OF COMPARATIVE LAW

The degree of Master of Comparative Law (M.Comp.L.) is for foreign students who wish to return to their countries. To be recommended for this degree the student must have completed a residence period of not less than one academic year. He must have completed satisfactorily 24 semester hours in approved courses in the curriculum of the School or of such other departments of the University as the Faculty of the School shall approve.

MASTER OF COMPARATIVE LAW (AMERICAN PRACTICE)

The degree of Master of Comparative Law, American Practice (M.Comp.L.(Am.)) is for foreign students who intend to remain in this country. To be recommended for this degree the student must have completed a residence period of not less than one academic year. He must have completed 28 semester hours in approved courses in the curriculum of the School with a cumulative average of at least 65.

DOCTOR OF JURIDICAL SCIENCE

To be recommended for the degree of Doctor of Juridical Science (S.J.D.) the candidate must have completed a residence period of not less than one academic year. He must have earned a record of study and research designated by his cumulative committee and approved by the Faculty of the Graduate School of Public Law. At the end of his first year of residence, or at such other time as the Faculty may set, the candidate must pass an oral examination in those fields of study selected by the cumulative committee. This examination is conducted by the cumulative committee and such other members of the Faculty and qualified experts as are selected by the Faculty.

Before the day specified in the University calendar, the candidate must submit to the Dean of the Graduate School of Public Law three complete copies of the dissertation, including a summary which is to be inserted as an appendix together with a letter copy of the summary. It is the responsibility of the candidate for a printed copy of the dissertation, which are rigidly enforced. To be eligible for the dissertation must, in the opinion of the examining committee, make a valuable contribution to the field of law concerned and be suitable for publication. Additional information will be supplied by the Dean.

The successful candidate for the doctorate is required, before receiving his degree, to pay a fee to cover the expense of printing the summary of his dissertation.

General Information

DAY AND EVENING CLASSES

Most day classes meet for fifty-minute periods between 9:10 A.M. and 1:00 P.M. Monday through Friday; Trial Practice Court meets for two-hour periods on Saturday morning.

Evening classes meet for two fifty-minute periods from 5:50 to 7:40 P.M. Monday through Friday. A four-credit course, e.g., Evidence, meets two evenings a week; a three-credit course, e.g., Administrative Law, meets two evenings a week for one half the semester and one evening for the other half; a two-credit course, e.g., Personal Property, meets one evening a week. The evening division conforms to the standards of the day division, the full-time faculty participating in the instruction.

SUMMER TERM

A term of two sessions, with day and evening classes, is offered in the summer. Continuing students and transfer students may register for either or both sessions. *No beginning students are admitted to the summer term.*

The summer term is shorter than a semester of the academic year, and as a consequence, a student must attend two and one-half summer terms to receive residence for one academic year or attend one and one-half summer terms to receive residence for a semester.

A maximum of 6 semester hours may be taken each session by day students. Day students receive four-ninths of a semester of residence credit for each session of the summer term in which they are registered for 3 or more semester hours. A maximum of 4 semester hours may be taken each session by evening students. Evening students receive three-ninths of a semester of residence credit for each session of the summer term in which they are registered for 2 or more semester hours.

Summer students planning to take the New York bar examination must register at the beginning of the term for both sessions and must complete both and carry a program of at least ten classroom periods a week for day students and at least eight classroom periods a week for evening students.

THE LIBRARY

The Law Library of 65,000 volumes contains the official reports of the decisions of the courts of last resort of all states but one prior to the National Reporter System; and of some states complete to date; the National Reporter System, complete; the reports of the United States Supreme Court and lower federal courts, and the reports of federal administrative agencies; Shepard's Citations for the units of the Reporter System; the English Reports, Full Reports, the English Law Reports; the Times Law Reports; the Dominion Law Reports; the United States statutes and codes; complete sets of statutes of all the states; the English statutes; the principal English and American digests and encyclopedias; collections of special reports and annotated cases; United Nations documents and leading textbooks and treatises. Approximately 475 legal periodicals are currently received. A section of the library, consisting of books borrowed from National University, is known as the National University Law Collection.

A student registered in the University is entitled to the reference use of the University Library. The Student Identification Card issued upon the payment of fees, may be presented as identification.

Also available to law students are 70,000 bound volumes and 20,000 pamphlets of the Law Library of the Carnegie Endowment for International Peace, in the fields of international law and relations, history, and economics, in the University Library.

The Law Library, which is on the third and fourth floors of Stockton Hall, is open from 9:00 A.M. to 10:00 P.M., Monday through Friday; from 9:00 A.M. to 5:00 P.M., on Saturday; and from 2:00 to 6:00 P.M., Sunday. Books and other materials do not circulate and must be used in the library.

APPLICATION FOR ADMISSION

For the application for admission to the Law School (720 Twentieth Street N.W., Washington, D. C. 20036; telephone: Federal 8-0750, extension 3271) or the Graduate School of Public Law (2000 H Street N.W., Washington, D. C. 20006; telephone: HU 8-0250, extension 400) see available at the Office of the school concerned. The application form should be returned to the Office of the appropriate Dean, with a separate fee of \$35 for a degree candidate. So for an unclassified student, a recent and photograph must accompany the application.

The Law School

Student of Law Admission.—In order to provide sufficient time for the consideration of candidates, the Law School Admission Test must be submitted to the other than the November, February, or April Law School Admission Test should be taken, the November Examination for the Doctor of Juris Doctor (page 17). In the summer session, the Law School Admission Test may be taken in August, but this must be received by the Office of the Dean not later than January 1 for the spring session and not later than one month prior to registration for the summer session. The application is made.

Unclassified Student.—Application for admission as an unclassified student (see page 17) should be received with necessary credentials at least one month prior to the beginning of the session for which the application is filed.

The Graduate School of Public Law

Student Degree.—Application for admission as a candidate for a graduate degree should be received by the Dean by August 1 for the spring semester, and one month prior to registration for the summer session for which application is made.

Unclassified Student.—Application for admission as an unclassified student (see page 17) should be received with necessary credentials at least one month prior to the beginning of the session for which the application is filed.

Continuing Legal Education Students.—Continuing Legal Education Students: a simplified form at any time prior to the first day of classes of the term concerned. No application fee is required and no credentials are necessary.

The early filing of application is urged. No application for degree candidates will be considered after September 1 for the fall semester, January 10 for the spring semester, and one week prior to the summer session concerned.

READMISSION

A student who has previously registered in the Law School or the Graduate School of Public Law but who did not attend during the most recent semester (summer term excluded) should file an application for readmission. (Checking dates for readmission are the same as those for admission, see above.) If the student applied as a degree candidate and was previously registered as a nondegree student at a college or attended one or more higher institutions during his absence from the University, he must have complete, official transcripts sent to the Office of the appropriate Dean from each institution attended before his application will be considered. Applications for readmission are considered on the basis of regulations currently effective.

REGISTRATION

Before attending classes each student must present himself in person for registration. No student will be registered in the Law School or the Graduate School of Public Law until proper credentials have been filed and approved (see "Admission").

No registration is accepted for less than a semester or one summer session.

A student may not register concurrently in The George Washington University and another institution without the prior permission of the dean of the college, school, or division in which he is registered in this University. Registration in more than one college, school, or division at the University requires the written permission of the deans concerned, prior to registration. Allowance of credit for work done recently at another institution will be at the discretion of the appropriate Committee on Admission and Advanced Standing.

Registration is held in Stockton Hall, 720 Twentieth Street, N.W., during the following periods: fall semester, September 17 and 18 from 12:00 to 3:00 P.M.; September 19 from 10:00 A.M. to 1:00 P.M.; Spring semester, January 28 and 29 from 12:00 to 1:00 P.M.; January 30 from 10:00 A.M. to 1:00 P.M.

A late-registration fee of \$5. is charged each student who is permitted to register after the regular registration days.

Registration may be changed only with the permission of the Dean.

FEES AND FINANCIAL REGULATIONS

The following fees were adopted for the academic year 1964-65.

Tuition Fees

Bachelor's, Master's, and Continuing Legal Education study	
Tuition programs (113 hours or more), each semester	\$ 55.00
Passage programs, each semester hour	40.00
Cost of Law School Services including the final examination	1,200.00

Special Fees

Application fee (foreign candidates), non-refundable	15.00
Application fee (international student), non-refundable	5.00
Application fee for exam transcripts	100.00
Student fee, Law School (Student Bar Association activities, Law Review, and other programs), charged each student (except students registered "in pass")	10.00
Student fee, each semester or was paid through except the summer term	25.00
Student fee, for each semester of doctoral dissertation	25.00
Student fee, for each examination, for each subject	25.00
Student fee, for failure to register within the designated period	5.00
Student fee, for each change of program involving the amount of more than one semester	5.00
Student fee, to maintain "in residence" status during any semester of absence from the University or when completion of tuition requirements* Due and payable on the official date of registration	2.00
Student fee, for deferred payment plan (See "Payment of Fees" below)	40.00
Student fee, for transcript after financial suspension	5.00
Student fee, for each transcript of record	10.00
	1.00

Registration at the University entitles each student to the following University privileges: (1) the services of the Placement Office; (2) the use of University library; (3) the use of University gymnasium; (4) admission to all athletic contests, unless otherwise provided; (5) subscription to the *University Herald*, the student newspaper; (6) the use of University facilities; (7) medical attention and hospital services as determined by the Health Services. These privileges terminate and a student is no longer entitled to them when he withdraws or is dismissed from the University.

PAYMENT OF FEES

Fees are payable at the Office of the Cashier, 725 Twenty-first Street NW. No student is permitted to complete registration or attend classes until all fees are paid. Payment fees for each semester are due and payable in full at the time of each registration.

A student registered for six semester hours or more may sign a contract with the Office of the Cashier at the time of each registration permitting him to pay the total tuition and fees (except for fees payable in advance) at the time of registration and the remaining half or as before November 4, 1964 (for the fall semester) and March 17, 1965 (for the spring semester). A Service Fee of \$5 will be charged payable at the time of registration for the use of this deferred payment plan. The University will not obligate itself to study the student in advance of the time of registration.

The student who registers for the summer term of absence in January and enrolls in the fall term of the following year shall be considered as having met the requirements for admission for the summer term of absence. The student who registers for the summer term of absence in January and enrolls in the fall term of the following year shall be considered as having met the requirements for admission for the summer term of absence.

payment due date for the second half of the semester will pass. Students must make any payment before they will be automatically considered withdrawn from class until they have paid all accrued fees and a \$100 Retention Fee and have been officially reinstated by the Office of the Registrar.

A student suspended for failure to meet requirements when due may not be treated for the academic suspension record from the date of suspension. Appointments and statements are to be made in the Office of the Registrar.

Any student pays all fees (chargeable to the student) requested for credit earned in

[illegible]

Altogether, 1000 copies in paperback (hard plans very successful in paperback) are available. The price and postage of this (paper) is quoted below. These figures are for the United Kingdom only. For other countries, please contact the publisher for details.

Individually some twenty-one years of age who are employed full time are not eligible to apply. They must signing their own contracts, provided they meet the other three specified by the plan for which they are applying.

machines and appliances. Whenever these plans are available in the office of the Vice President and Treasurer.

WITHDRAWALS AND REFUNDS

WITHDRAWALS AND REFUNDS

Applications for withdrawal from the University are for charge to the student must be made in person or in writing to the dean of the college, based on a case in which the student is requested. Withdrawal is an admission to the college.

In withdrawal withdrawals and changes in schedule contributions of amounts to and charges and fees will be made to correspond with the following schedule.

4. Complete paragraph from the University.

1. *Journal of the American Medical Association*, 1997; 277: 1033-1037.

Statistical data on at least 500 cases of VAD and

Microfossil dated on all dates September 20, 1964.
Microfossil dated September 20 to October 20, 1964.

2. *in situ* (dried) September 30 to October 1, 1964

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1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 2680, 26

Withdrawal dated as on before February 2, 1990.

Withdrewn dated as on before February 11, 1960.
 Withdrawn dated February 11 in February 11, 1960.

Unpublished (dated February 11-15, 1950)
Unpublished (dated February 22, 1950)
Unpublished (dated February 22, 1950)

Received 29 February 1999
 Accepted 2 March 1999

2. Give a change of name from *foliatus* to *pubescens* in the description of the plant. The name *pubescens* is already used in the description of the plant.

2. For a change in some from *foliation* to *prograde metamorphism* caused by a particular event, the above principle applies to the difference between the original prograde and the subsequent prograde metamorphism.

3. A mineral involved in a full-time prograde metamorphism and not involved in a full-time retrograde metamorphism, will have an *isothermal metamorphism* of some kind after that time involving some heat.

Students will tuition be returned or reduced because of absence from classes. Payment applies only to the semester for which a registration charge is incurred and will not be credited to another semester. Applications to withdraw and refunding fee work must not be given a true fee but not a clear financial record. Students are encouraged to provide their own cash funds until they can make their arrangements in the community.

FELLOWSHIPS, SCHOLARSHIPS, PRIZES, LOAN FUNDS

Law School Research Fellowships. Available each year to students currently enrolled in the Law School, graduate or undergraduates who are completing the second year. Each student receives an annual stipend. Awards are made on the basis of academic achievement, financial need, and interest in leadership. Research assistants are given a salary and travel allowance. Applications should be submitted to the Dean of the Law School not later than May 1.

Law School of Public Law Teaching Fellowships. Available each year to students currently enrolled in the Master of Laws degree. Each fellow receives an annual stipend, plus tuition for the academic year. Teaching fellows follow an approved program of study and research, assist members of the faculty in the guidance of students, and prepare student work in legal bibliography and the drafting of legal documents. Upon satisfactory completion of the year's work, a fellow is recommended for the degree of Master of Laws. Applications should be submitted to the Dean of the Graduate School of Public Law not later than March 20.

Thomas J. Watson Fellowship (1961). Established through the Patent, Trade Mark, and Copyright Research Institute in the amount of \$4,000, this fellowship is available to a University graduate student who will be expected to follow a research program approved by a member of the Research Institute Staff. Candidates will be selected to conduct study on the U. S. patent and related systems, and will be awarded by the University's Patent, Trademark, and Copyright Research Institute.

Mary S. English Memorial Scholarship (1961). Established by Mary S. English in her will, Mary's English, L.A.B. 1962, provides tuition and a research stipend to the Law School on the basis of academic achievement in the second year.

Charles J. Watson Distinguished Memorial Scholarship (1947). Established by Charles J. Watson, Bachelor of Laws, LL. Master in Laws, LL. A fellowship for the second year in the degree of Bachelor of Laws awarded to a promising graduate of this University with a Bachelor of Arts or science. The scholarship is awarded annually once every three years.

The Samuel Hays Scholarship. This scholarship available each year to students currently enrolled in the Law School. Each scholarship provides tuition and a stipend for the first year in addition to full tuition for all three years. Those students are awarded on the basis of outstanding college records, high academic achievement, and financial need. To receive the scholarship, students must be recommended by the second and third years of B average class in recommended. Applications should be submitted to the Dean of the Law School.

Phi Delta Delta Scholarship (1959).—Zeta Chapter of Phi Delta Delta Law Fraternity (International), provides tuition aid to a woman student in the second year of the Law School, who excelled in scholastic achievement and service to the Law School in her first year.

Tuition Scholarships.—Available each year in the Law School to graduates of accredited colleges. Each scholarship provides full three-year tuition in the morning division of the Law School. Candidates must have demonstrated qualities of leadership in addition to scholastic achievement. To retain the scholarship, the successful candidate must maintain a B average. Application must be made before March 1 to the Dean of the Law School.

Tuition scholarships are also available to continuing second and third-year law students with averages of 75 and above. Applications should be made to the Dean of the Law School prior to July 1. Scholarships are awarded after spring semester grades are reported.

Charles Chase Price.—Established by Charles Carroll Chayer, Jr., an Honorary Trustee of the University, in memory of his great-grandfather, an illustrious member of the bar of the District of Columbia. Consists of selected law books. Awarded annually to the student in the Law School who has attained the highest average grade in the third-year, full-time course.

Kings Riney Pi Price.—A copy of Blackstone's *Commentaries* or a legal dictionary awarded annually by the Alumni Chapter to the woman law-student who attains the highest average for the treatment year.

John Ball Latimer Prize.—By bequest, a medal is awarded annually to the member of the graduating class in the Law School who attains the highest average grade in the entire course for the degree of Bachelor of Laws or Juris Doctor.

American Security and Trust Company Award.—A cash award to a graduating senior for the most effective work in the course in estate planning.

Lawyers Title Award.—A \$400 prize established by the Lawyers Title Insurance Corporation is awarded annually to a graduating senior for excellence in the law of real property.

John Ordway Price.—By bequest, \$75 is awarded annually to the student who has attained the highest average grade in the first-year, full-time course, and \$25 to the student who has attained the highest average grade in the second-year, full-time course.

Jessie Hunter Walburn Prize.—Established by Professor Orville H. Walburn of the Law School. Founded in memory of his mother. Awarded to the student in the Law School who during the calendar year has attained the highest grade in the course *Trusts and Estates I*.

Loan Funds.—Through the generosity of friends of the University a number of loan funds are available to students in the Law School. Among them are the Law Association Loan Fund, the names of 1912, 1921, 1929, 1933, 1935, 1937, 1939, 1951, 1952, 1953, 1961 Loan Funds, the George R. Benjamin Loan Fund, the Robert M. and Mary McCann Cooper Loan Fund, the Homer L. Lohmes Memorial Assistance Fund, the Japanese Educational Trust Loan Fund, and the Mike Peckin Loan Fund. Applications for loans should be made in the Office of the Dean.

REGULATIONS

AMOUNT OF WORK

Students without substantial outside employment may take a program of studies of 4 hours a week. Such students may take courses in the evening only if they are not available in the daytime and if a majority of the hours taken are in day courses. The Dean is authorized to approve 15-hour programs in exceptional cases. Students not taking a course of study are not employed whether in the day or evening division, and 20 hours or more of outside employment whether in the day or evening division may take a limited program of studies not exceeding 10 hours a week. Students taking a majority of their classes in the evening may not take more than 10 hours a week, the maximum being 6 hours, except in special cases where 6 may be approved for a limited time. A minimum schedule of 10 hours in the day division is required except in exceptional circumstances when a reduced program is authorized by the Dean for continuing students.

Students taking more than 8 hours in the day division or 4 hours in the evening division must have the permission of the Dean to take a Bar Review course.

ATTENDANCE

Regular attendance at classes is required and is necessary for successful work. A student who is deficient in class attendance in any course may be barred from taking the course and the course must be repeated.

CHANGES IN PROGRAM OF STUDIES

A student may not drop or add courses or change from one section to another of a course without the approval of the Dean.

RESEARCH PAPER IN LIEU OF EXAMINATION

The preparation of a research paper is required in lieu of an examination in the course and in some courses, as indicated in the course descriptions by (RP). The research paper must be submitted by the last day of classes of the semester; for other courses, the instructor must extend this time to the end of the examination week. In general, a qualified undergraduate student may register for one such course; a student may be more registered for two, as for Current Decisions and one other.

EXAMINATIONS

Examinations are held at the end of most courses. Every student is responsible for the regular examination unless excused. No excuse for absence will be granted except by the Dean and there may not illness or other emergency. Applications for excusal must be made in writing not later than one month after the date of the examination. A majority of 2/3 of the faculty will be made on the record of a student's examination. To receive credit for the course, he must take the next regularly scheduled examination. The examination may not be taken after excluding for two school years.

Permission to take an examination before the regularly scheduled date will be granted. Permission to take a postponed examination is limited to the extent provided for in the preceding paragraph.

A special examination will be granted only to a student entitled to take a postponed examination, who is a candidate for a degree to be conferred at a session which provides the next regular examination in the subject. Written applications showing sufficient cause should be addressed to the Dean, and approval will be granted at his discretion.

If a student fails to take an examination a grade of zero will be recorded, and he has been excused from the examination as provided above or has obtained the Dean's permission to drop the course.

GRADES

Grades are given in numerical form which are equivalent to letter grades according to the following scale: 90-100, A; 80-89, B; 70-79, C; 60-69, D; 50-59, E; 40-49, F; 30-39, G; 20-29, H; 10-19, I; 0-9, J. A student who has been excused from failure or takes a regularly scheduled examination given the grade of F, is considered, and a student who has been excused from a postponed examination because of excessive absence is given the grade of F. If a student is "dropped" above, his grade upon failure is not to be considered. Grades below 60 indicate that the work has been completed and credit given for the course. Grades between 60 and 69, however, do not represent satisfactory work and do not affect a student's cumulative average. No credit is given for grades below 60.

A student may not repeat a course he has failed. The cumulative average of a student includes all grades in all courses that will be in a candidate for a particular degree. When a course is repeated (see "Academic Handbook", pages 30-36) both the first grade and the subsequent grade are included in the cumulative average.

EXCLUSION AND PROBATION FOR POOR SCHOLARSHIP

Candidates for the Degree of Bachelor of Arts and First Degree. A student will be excluded who fails to obtain satisfactory progress during his first semester or in his second semester, or who fails in either semester to obtain satisfactory progress during his period of his study. A student subject to exclusion who that semester who is previously registered will be permitted to complete the work of the semester.

A student not subject to exclusion under the foregoing rules who at any time fails to maintain a cumulative average of at least 60 will be given exclusion probation. A student on probation may at the discretion of the Dean be required to reduce his grade of study. A student on probation will be excluded if he fails to obtain a cumulative average of at least 60 by the end of the second semester following the semester in which he was placed on probation. If a student on probation obtains a cumulative average of at least 60, he may graduate during the semester in which he is on probation. A maximum of three semesters of probation is granted. If a student whose third semester fails to obtain a cumulative average of 60, he is given exclusion probation for the third semester. A student on probation is required to obtain the average of at least 60.

Academic Dishonesty.—A student who has been excluded and who can demonstrate that he has given more than an unimpaired second law credit and that he has the credit to pass the study of law with a definite likelihood of passing may be readmitted by the Faculty subject to such conditions as may be imposed.

Readmission for Graduation.—A student who has not obtained the graduate degree may be readmitted to the regular course of the Faculty, taking into consideration the progress and standing in the degree may, by action of the Faculty, be excluded at the end of the summer for which he is currently registered.

Excluded Students.—An excluded student whose work is not satisfactory in the Faculty may, by action of the Faculty, be excluded at the end of the summer for which he is currently registered.

SUMMER SCHOOL CREDIT

Students planning to attend summer school sessions at other law schools and desiring to receive credit toward the study of law at this Law School must first obtain the approval of the Faculty. No student will be permitted to receive credit toward the study of law at this Law School.

TRANSCRIPTS OF RECORD

Transcripts of record records will be issued on request of the student at the time of his graduation. A fee of one dollar is charged for each transcript. No transcript will be issued for a period of three months after the date of graduation.

GRADUATION REQUIREMENTS

Application for Graduation.—It is the student's responsibility to file an application for graduation with the Office of the Registrar at the time of registration for the last semester of the course or final year. Students registering for complete requirements for graduation must appear for graduation as a part of the course.

Graduation Requirements.—The student must pass the preliminary, scholarship, and final examinations of the degree law which he is registered.

Residence.—A student who is placed from the University for one or more semesters in order to satisfy the graduation requirements during the time of his residence, must appear for graduation "in residence" under the provisions of the law.

Excluded Students.—A student who has been excluded from the University for one or more semesters, must appear for graduation "in residence" under the provisions of the law.

Application for Graduation.—Applications for graduation in January must be filed with the Registrar.

ACADEMIC DISHONESTY

Students who are guilty of academic dishonesty will receive no credit for the work and will be excluded from the University. Students who are guilty of academic dishonesty will be excluded and will be deprived of the right to receive credit for the work.

grade for all courses in which he is enrolled during the semester in which the dishonest act occurs. A disciplinary grade of "Failure—Academic Dishonesty" will be recorded for each such course, and this grade will be employed in computation of the cumulative average.

If the student excused for academic dishonesty should be readmitted, he may be required to repeat for grade all courses for which a disciplinary grade has been recorded, and both the grade earned on repetition and the disciplinary "Failure—Academic Dishonesty" grade will be employed in computation of the cumulative average.

RIGHT TO CHANGE RULES

The University and its various colleges, schools and divisions reserve the right to modify or change requirements, rules and fees. Such regulations shall not be considered unless the proper authorities have determined.

RIGHT TO DISMISS STUDENTS

If a student knowingly makes a false statement or commits material dishonesty on an application for admission, registration, credit, or any other University document, his registration may be cancelled and he will be ineligible (except by special act of the Faculty) for subsequent readmission.

The right is reserved by the University to dismiss or exclude any student from the University by reason of class or course, whenever, in the interest of the student or the University, the University Administration deems it advisable to do so.

PROPERTY RESPONSIBILITY

The University is not responsible for the loss of personal property except Library or building. A "Lost and Found" Office is maintained in the Student Union.

HEALTH SERVICES

The Health Services Staff assists students with their medical needs by advice and treatment, by proper referrals when necessary, and by cooperation with other agencies. For medical emergencies and health examinations there is, on the campus, a Student Health Clinic open from 9 A.M. to 5 P.M. Monday through Friday during the academic year and Summer Sessions, with physician and nurse in attendance. There is also a rest room for persons with a graduate course in charge. For acute and medical emergencies, students may go to the emergency room of the University Hospital for treatment. The limit fee for two visits will be paid by the Health Services, and all other charges will be the responsibility of the student. The responsibility is for emergency care only.

Medical privileges include: (1) physical examinations of all students who are up for admission for entrance in Physical Education; (2) those years in any one phase of a member of the Health Services Staff, unless as otherwise (Diversity of Columbia); (3) qualifications, including blood and serum, in the University Hospital for not more than one week during one (or two) month period; the services to be determined by the Director of Health Services; (4) additional hospital charges for operating room.

* A charge for a special physical examination is made by the University if a student fails to appear for a physical examination during the period set for one reason.
* A fee will be for the services.

laboratory. X-ray examinations or any special service must be paid by the student. Expenses incurred for examinations and treatment by specialists, such as consultation and services of physical therapists, examinations and application of braces, orthodontia, laboratory and X-ray work and surgical operations must be paid by the student.

The medical branch applies only to illness or disability incurred while currently enrolled in the University. It does not apply to illness or disability incurred before the last day of enrollment for a semester or summer session and completion of payment for the next semester or summer session.

The student is allowed, if he is a doctor, to change physicians and return of his money, but when he does so he will be responsible for the fees charged.

The Office of the Director of Health Services is empowered to treat or deny the student where, in his discretion, a student has, for his misconduct or breach of contract of the University, made himself ineligible; (2) the Director of Health Services has authority in determining the necessary and length of hospitalization; (3) a student be removed, suspended or expelled who has severed his connection with the University in violation of medical facilities; (4) a student desiring to treat for an ailment be required to pay a thorough examination at the beginning of each semester; (5) hospitalization is not available to those students seeking themselves of the University except for the same illness.

The University is not responsible for current received to investigate or intrude upon or abuse of the privacy of the personal education department.

STUDENT ACTIVITIES AND SERVICES

RESIDENCE HALLS

Information concerning the University's residence halls is available at the Office of the Dean of Men or the Office of the Dean of Women, The George Washington University, Washington, D. C. 20057.

Information concerning all campus housing from the University may be obtained from the Office of the Dean of Men. The provision of funds to private tenants must be made by the student.

The University does not include a room reservation. A separate application should be made well in advance (for the fall semester by May 15 and for the spring semester by January 15th). Rooms are leased for the academic year. If a student is withdrawn or suspended at any time, the reservation is forfeited and the deposit will be returned. Room awards are payable in cash by the student.

RESIDENCE HALL RATES FOR TWO SEMESTERS—1964-65

	Room and Food Service	Room only
Men's Hall	\$441	—
Women's Hall	—	—
Combined Hall	—	—
Men's Hall	\$441	—
Women's Hall	—	\$200
Combined Hall (Graduate and Postgraduate Students)	\$200	\$200
Living Hall	\$200	\$200

Courses of Instruction

IN THE LAW SCHOOL AND THE GRADUATE SCHOOL OF
PUBLIC LAW

The content of contracting bond follows any orders to change. The University re-
news the title to continue any contract agreement.
The number of bonds will be determined.

the time is unknown and may even be infinite. The University is not aware of how to credit growth for the satisfactory completion of a course if a student is withdrawn from the course at the end of the semester. Thus, a year course giving 12 credits each semester is marked Q (27), and a semester course giving 6 credits each semester is marked (2).

[illegible]

and cannot be used in public law.

Many of these conditions may take independent, common

REQUIRED COURSES—FIRST YEAR

REQUIRED COURSES—FIRST YEAR

Major, Dwyer Miller, Louisville

Miller, Freedman, Schiller

Miller, Friedman, Schiller

There is a growing consensus that the current system of international law is inadequate to deal with the challenges of the 21st century. The system is based on a model of state sovereignty that is increasingly outdated. The world is becoming more interconnected, and the challenges are becoming more complex. The system needs to be reformed to reflect the realities of the world today.

Journal of Law and Economics, 1981, 24, 1-24

D. Green, *Source*

Journal of Criminal Law and Criminology, 1991, 82(1), 1-12.

From, Henry, Dallas

...the ... of ...

Received by the Editor: November 12, 1993

Five: Mallory, Rogers, Chapman

150 *Real Property* (4)

Historical background of the law of estates and conveyancing; types of estates, leasehold and freehold; landlord and tenant relationships; common law estates; future interests at common law and after the Statute of Uses; the Rule Against Perpetuities; interests of married ownership, as well as, natural rights. (Fall, evening; spring-day; summer 1964.)

Benson, Walburn, Schiller, Slatts

161 *Torts I-II* (3-2)

Liability for harm to person or property. Intentional torts, negligence, trespass and strict liability, misrepresentation, defamation, and invasion of privacy; fault and other bases for making losses, restoration, damages; effects of liability insurance, products under the Federal Tort Claims Act. (Academic year-day and evening.)

Merrifield, Sendelson, Isenbush

OTHER REQUIRED COURSES

205 *Appellate Practice and Procedure* (2)

The position of the administrative process in the separation of powers, including the status of administrative personnel, administrative hearings, judicial scrutiny of administrative action, discretion, and rule-making—particularly as relating to federal administrative agencies. (Spring-day and evening; summer 1964.)

Freedman

215 *Civil Procedure* (4)

The mechanics of litigation: the rules which govern the process by which the disputes stated in substantive law courses are resolved, including discovery, pre-trial potential motions, jurisdiction and venue, equity jurisdiction and finality, trial, appeal, adjudication. Emphasis is on the Federal Rules of Civil Procedure but the principles and basic problems inherent in all procedural systems are developed. (Fall-day and evening; summer 1964.)

Walburn, D. Green

240 *Evidence* (4)

Preparation and presentation of evidence, including proof of writings, publication and authentication of writings with emphasis on hearsay, privilege, opinion testimony, determination of relevance, demonstrative, experimental, and scientific evidence, application of the hearsay rule. (Spring-day and evening; summer 1964.)

Fryer

305 *Patent Trial Practice Court* (2)

Practice before the United States Court of Customs and Patent Appeals and the trial court. Pre requisite: thirty-two semester hours, including Law 215 and 240. Law 305, which is also required, may be taken concurrently. The Trial Practice Court is a course in the spring semester; Law 240 may be taken concurrently. (Fall and spring-day and evening.)

Brown, Rind

315 *Trial Practice Court* (2)

Trial of assigned cases, trial tactics and techniques, pre-trial and court room procedure pursuant to Federal Rules. Pre requisite: thirty-two semester hours, including Law 215 and 240. The Trial Practice Court requirement may be satisfied by two courses in Law 305. If Trial Practice Court is studied in the spring semester, Law 240 may be taken concurrently. (Fall and spring-day and evening.)

Jackson, Edgerton, Herrick, Monk, Beard, Hart, Kendrick, Skinner, Claman

ELECTIVE COURSES

205 *Appellate Practice and Procedure* (2)

Students participate in preparing an actual criminal case on appeal, starting with review of the trial transcript and proceeding with presentation of the brief and oral argument before the United States Court of Appeals for the District of Columbia Circuit or the Supreme Court of the United States. In addition, appellate practice and procedure are studied through lecture, consultation with appellate judges and law clerks and with attorneys who have been preparing on appeal, and observation of arguments in the Supreme Court and the Court of Appeals. Admission by permission of the instructor. (Not offered 1964-65.)

Freedman



THE LAW SCHOOL





Learning to grow the law is an experience that goes beyond the classroom. It comes from individual study, and group discussion.



Judge SKELLY WRIGHT
U.S. Court of Appeals

Supreme Court Justice
POTTER STEWART

Learning comes from direct contact with legal authorities, and exploring issues in public law as a staff member of the Law Review





Student Lounge

*Learning centers in moments of quiet reflection and
in reliving the fun of current events*



*Learning to speak a few words in the classroom
and expand on the resources of the Spanish Club!*



- 20. Business Associations I (2)** Sharpe
This module concerning association in business by agency, partnership, other non-
corporate forms, and corporations' creation, form and nature of agency, partnership,
and corporation. Some variations of agency and partnerships and introductory related
aspects of incorporation law. (Fall—day and evening; summer 1964.)
- 21. Business Associations II (4)** Kirkpatrick, Law
Corporate law, with emphasis on operations and financing of the corporation. Control
of the corporation, action by corporate directors, officers, and shareholders. Control
issues. Directors and shareholders' duties of care and loyalty, and members' trust
worthiness in relation to the corporation. Derivative suits, kinds of shares, dividends, and
corporate control. (Fall—evening; spring—day and evening.)
- 22. Commercial and Investment Paper (3)** Ledakis
Kinds of exchange, promissory notes, checks, bonds, certificates of stock, and other forms
of commercial and investment paper in the context of their business function and legal
effect under the Uniform Act and Uniform laws, including the proposed Uniform Com-
mercial Code. (Spring—day and evening; summer 1964.)
- 23. Sales and Sales Financing (3)** Ledakis
The law relating to the sale and distribution of goods and to the security financing de-
pendent in this transaction, with particular attention to the effect of existing and
proposed uniform laws. (Fall—day and evening.)
- 24. Domestic Relations (2)** Potts, Seldelson, Clingan
Marriage, divorce, and children's adoption and custody problems; economic rela-
tions. (Fall—evening; spring—day and evening; summer 1964.)
- 25. Equity (2)** Hogan, Starrs
Nature of equity jurisprudence through analysis of selected problems in equity; his-
tory and development of equity, including problems of merger of law and equity; use of
equity instruments differently and administratively including multi-party systems, execution
of judgments and legal actions, and equitable defenses; emphasis on the fashioning of
remedies. (Spring—day and evening) summer 1964.)
- 26. Federal Jurisdiction (2)** Freedman, Sharpe
A view of the relationship of the federal courts to the Congress and to the states.
Federal courts of cases dealing with the federal national policies. (Including problems
concerning matters relating to litigation and jurisdictional federal questions in the
federal courts and federal review of state court decisions. (Including the relation be-
tween state and federal jurisdiction law procedural problems in exercising review, and
jurisdiction of law in fact). (Fall—evening; spring—day; summer 1964.)
- 27. Insurance (2)** Schiller
Insurance risk distributing system and the roles by which legislative, administrative,
and judicial bodies seek to promote its benefits and meet its dangers. Includes study
of insurance contracts, insurable interests, contributions, methods of insurance financing to non-
profit insurers, insurance and other economic public protective disposition of claims.
(Fall—day and evening; summer 1964.)
- 28. International Law and World Order (3)** Mullison
General concept of international course in international law presented in context of
the present situation of the world community; places emphasis upon national states
and their relations of the world community, with consideration also of individuals, in-
ternational public organizations, national parties, private groups, and private individ-
uals. Emphasis on role of available institutions, the status and effects of international
agreements under the United Nations Convention. This course complements but does
not replace the material in Law 101. (Fall—day and evening) summer 1964.)
- 29. Labor Law (3)** Merrifield
Labor union administration, representing and representation of em-
ployees, maintenance of employee discipline, management of collective bargaining agree-
ments, labor relations and industrial relations. (Spring—day and evening.)

1. (1)

5. Law and Accounting (2)
Study of fundamental accounting principles with emphasis on corporate accounting and financial statements. Discussion of specific areas in financial accounting as well as legal and accounting implications of specific areas in financial accounting and related topics, including shareholder, corporate transactions, distributions and control issues. (Satisfies accounting.)

Mallison

10 *Legislation* (12)

The legislative process will follow all the customary steps in the process, as outlined in the United States Congress and state legislatures, including such things as committee assignments, procedures. Secondary interpretation is undertaken in the administrative process. Some measures in order to provide a finalizing for your reference.

and earnings, income 1964-5

W. J. ...

4. Taxation: Federal Estate and Gift Tax
A survey of the substantive provisions of the federal estate and gift tax laws, including inter vivos transfers, transfers in contemplation of death, generation-skipping trusts, and presently exempt transfers in respect of nonexempt transfers, the marital deduction and other tax credits. (Fall day and evening)

11.

9) *Taxation—Federal Income* (3)

Weaver, Law

[illegible]

Weston

[illegible]

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2. Autonomy (A)
 Freedom of movement in (strictly) unpopulated, mountainous, forested areas, and free access to the mountains for large mammals and other animals, and freedom of access to the mountains for some population groups (nomads and local residents).
 Free movement of people, goods, and services between the mountainous and non-mountainous territory, regardless of presence of goods and services in the mountainous and non-mountainous areas.
 Free movement of people, goods, and services between the mountainous and non-mountainous areas.

1144

Comparative Law (3)
The Civil Law System) general introduction to foreign law as civil law
law and the French and German Civil Law, comparative study of civil law
justice and legal institutions. This course deals with national and international
law. (Open-continued)

$$m_{\ell} = \{ \ell, \ell-1, \dots, -\ell \}$$
[illegible]

- 31) *Copyright Law* (2) Gory
 (Federal background) discussion and materials in covering a copyright, and the role of the Copyright Commission, International aspects of copyright under Berne Union, U.S. Copyright Convention, and International Copyright Commission. (Spring semester) (Spring meeting)
- 32) *Products' Rights* (2) Kirkpatrick
 (Federal background) discussion and materials in covering a copyright, and the role of the Copyright Commission, International aspects of copyright under Berne Union, U.S. Copyright Convention, and International Copyright Commission. (Spring semester) (Spring meeting)
- 33) *Current Decisions* (2-3) Sullivan
 (Federal background) discussion and materials in covering a copyright, and the role of the Copyright Commission, International aspects of copyright under Berne Union, U.S. Copyright Convention, and International Copyright Commission. (Spring semester) (Spring meeting)
- 34) *Patent Law* (2) Wesson, Kirkpatrick, Linder
 (Federal background) discussion and materials in covering a copyright, and the role of the Copyright Commission, International aspects of copyright under Berne Union, U.S. Copyright Convention, and International Copyright Commission. (Spring semester) (Spring meeting)
- 35) *International Law* (2) Marras
 (Federal background) discussion and materials in covering a copyright, and the role of the Copyright Commission, International aspects of copyright under Berne Union, U.S. Copyright Convention, and International Copyright Commission. (Spring semester) (Spring meeting)
- 36) *Collective Bargaining and Labor Arbitration* (2) Marras
 (Federal background) discussion and materials in covering a copyright, and the role of the Copyright Commission, International aspects of copyright under Berne Union, U.S. Copyright Convention, and International Copyright Commission. (Spring semester) (Spring meeting)
- 37) *Law, Economics and Social Security Legislation* (2) Marras
 (Federal background) discussion and materials in covering a copyright, and the role of the Copyright Commission, International aspects of copyright under Berne Union, U.S. Copyright Convention, and International Copyright Commission. (Spring semester) (Spring meeting)
- 38) *Legal Writing* (1) The Staff
 (Federal background) discussion and materials in covering a copyright, and the role of the Copyright Commission, International aspects of copyright under Berne Union, U.S. Copyright Convention, and International Copyright Commission. (Spring semester) (Spring meeting)
- 39) *Legal Drafting* (2) Zinn
 (Federal background) discussion and materials in covering a copyright, and the role of the Copyright Commission, International aspects of copyright under Berne Union, U.S. Copyright Convention, and International Copyright Commission. (Spring semester) (Spring meeting)
- 40) *Legal Research* (2) Mullins
 (Federal background) discussion and materials in covering a copyright, and the role of the Copyright Commission, International aspects of copyright under Berne Union, U.S. Copyright Convention, and International Copyright Commission. (Spring semester) (Spring meeting)
- 41) *Legal Law* (2) Kayton
 (Federal background) discussion and materials in covering a copyright, and the role of the Copyright Commission, International aspects of copyright under Berne Union, U.S. Copyright Convention, and International Copyright Commission. (Spring semester) (Spring meeting)
- 42) *Legal Office Practice* (2) Kayton
 (Federal background) discussion and materials in covering a copyright, and the role of the Copyright Commission, International aspects of copyright under Berne Union, U.S. Copyright Convention, and International Copyright Commission. (Spring semester) (Spring meeting)

363 *Patent Interference Practice* (1)

Some preparation for instituting an interference, interposing interference claims, the conduct of preliminary statements, presentation of evidence, submission of evidence, the hearing process, appellate procedure, settlements. (Spring—evening.)

Magill

364 *Patent Licensing and International and Comparative Patent Law* (2)

Survey of the principal national patent systems with study of their essential legal features. Topics relating to patents: The International Convention for the Protection of Industrial Property; Patent and trademark treaty between of countries; status, renewal, application, administration. Current movements toward patent and utilization of patent laws. Property in the Common Market countries; patent for multinational goods. Fundamentals of Exclusive and Non-Exclusive Patent in some Countries. What can be learned and how. Problems of royalty payments, licensing of improvements, grant-back clauses, termination, Goldharrows, and the varied utility patent enforcement and administrative procedures, comparison of the U.S. and foreign's systems in the drafting and validation of a patent course. (Spring—evening.)

Malley, Lee

Fetters

370 *Restitution* (2)

Quasi-contract, constructive trusts, possession and other legal and equitable remedies for restoring property and money which wrongly comes within of the hands of others, claims of unjust enrichment, and parties to mistaken contracts. (Spring—evening—summer 1964.)

Sharpe

372 *Secured Transactions* (3)

Security and mortgages, security interests in real and personal property, their creation, transfer, enforcement, and extinguishment; the law of security in relation to the nature of commercial credit and commercial and financial practice. (Spring—day and evening.)

D. Green (Chair)

382 *Selected Problems in the Trial of Tort Cases* (2)

Open to undergraduates with no hours or more, including Torts, Civil Procedure, and Evidence, and to graduate students and young lawyers without experience in the trial of a negligence case. Review developments in the principal areas of negligence law, an exposure of the fundamental concepts of damages and the principal aspects of setting a negligence case; the assumption and role of a negligence case; the content of primary liability insurance policy and its impact upon tort litigation; the literature of tort law. (Fall—evening.)

Goldborough

391 *United Nations Constitutional Law* (2)

An introduction to international law through study of the law and practice of the United Nations Charter; structure and process of the United Nations; the general settlement of disputes, collection security, regulation of armaments, disarmament, and types of functional cooperation. This course complements but does not repeat the material in LAW 274. (Spring—evening.)

Mallison

426 *Forensic Medicine* (2)

Substantive information for law students in the medical environment. General method, medical education and specialties, and hospitals; to include discussion of current problems arising in areas where law and medicine intersect; medical ethics and practice and organizations; professional liability; and the use of medical facts as legal proof and in positive law. (Fall—day and evening.)

Sharpe, Head

431 *Government Contracting I* (2)

A survey of the basic law underlying government procurement, the basic forms and transactions on the Federal Government is entered into contracts, administrative and legislative policies governing those contracts, administrative and negotiated procurement processes, forms of contracts and clauses used. (Fall—day and evening.)

Nash, Clavin, McIntire

436 *Legal Regulation of International Conflict* (2)

The process of legal regulation in war and when expectations of violence are high—the contemporary international law of war and concrete measures short of war such as international blockade; legal aspects of various methods of conflict—economic, political.

Mallison

biological, and military. It was and the matter of preventing "escalation" to the use of nuclear weapons; problems concerning atomic, biological, and chemical weapons; war crimes and crimes against humanity. (RP) (Not offered)

47. *47. Taxation: Accounting, Estates and Trusts, and Partnerships (2)* — Weaver
Survey of substantive provisions of federal income tax with respect to tax accounting,
estates and trusts and partnerships. Prerequisite: Law 209. — (Spring—evening.)

GRADUATE COURSES

- GRADUATE COURSES**
90. **Seminar: Administrative Law** (2)
Group study of specific problems in administrative law. (RP) (Spring-evening.) **Davison**
90. **Seminar: Constitutional Law** (2)
Group study of constitutional problems in constitutional law; the process of constitutional litigation; problems in constructing constitutional government. (RP) (No. 1944-6.) **Dixon**
91. **Use and Control of Atomic Energy and Space Technology** (2) **H. Green**
Problems resulting from the development of scientific developments of recent years, as well as public policy for atomic energy and space activities. The impact of these advanced technologies on the law and the legal institutions established to assure their proper control in the public interest. Laws relating to atomic energy and space. Problems of the Atomic Energy Act and the regulations of the Atomic Energy Commission. (RP) (Spring-evening.)
91. **The Modern Corporation** (2) **Manne**
An attempt to apply the principles of public law to the modern large corporation. Examination and analysis of such problems as the ownership of ownership and the rights for control of the corporation, impact of capital markets and corporate structure, relation of corporate law to corporate control and the regulation of specific aspects of S.E.C. and general corporation laws in the large corporation. (RP) (Fall-evening.)
91. **Administration of Criminal Justice** (2) **Allen**
Selected problems in the field such as arrest, police interrogation, electronic interception, discovery, and the various phases of prosecution and defense in preparing cases. The professional responsibility of lawyers will be emphasized. (Fall-evening.)
92. **Seminar: Estate Planning** (2) **Weaver**
Group study of the diverse dimensions of wealth, inter vivos and testamentary gifts, conservation for future generations, use of trusts, tax and administrative problems, income interest. (RP) (Spring-evening.)
92. **European Community Market** (2) **Isonbergh**
Study of the treaty establishing the European Economic Community and study of selected aspects of the Community's development and functioning, such as substantive law of the common law and free trade and commodity, customs and tax provisions; legislation, executive and judicial power of the Community; its institutions; development of common economic policies; rights of establishment and free movement within the Community; and the Community's relations with Member States, and associated countries as well as with international organizations. (RP) (Fall-evening.)

and literature of decisions and issues (usually) contribution of consider-
able practice, the nature of economic activity, social and criminal justice and
as sources of the criminal law; contribution of economic principles, con-
tributions to present status and extent of economic freedom and agree-
(Fall-semester.)

30 *Survey: International Commercial Transactions* (2) Lodakis
This is the focus and evolution of his practice, survey of problems of the foreign
business with the United States in its national development in foreign
and international trade, industrialized countries, special treatment of the role of
the enterprise and production activity, emphasis in developing nations. (RP)

40 *Legal Aspects of International Business Transactions* (2) Nurik, Guekhan
This course has two profiles including current patterns and tax problems, level
with the British and Arab law systems, international law, foreign com-
mercial law, country considerations, effect of S.G.T. laws and regulations,
international law, including S.A.T.T. and reciprocal trade agreements, nature of
the United States and foreign policies and public, including international in-
vestments and commercial law. In addition to the regular lectures there will
be seminars in their respective. Perspectives, Law 34. (RP) (Spring)

50 *Survey: Labor Law* (2) Merrifield
This is a survey of contemporary problems in labor law. (RP) (Fall-semester.)
60 *Survey: Relations in the Federal Service* (2) Hofstad, Wallerstein
This course has two profiles including a study of labor relations in the federal
service, emphasis is given to current problems arising out of the President's
Executive Order and the Executive Order of January 17, 1962, creating a new in-
dependent relationship between employees organizations and the federal govern-
ment. (RP) (Fall-semester.)

70 *Survey: The New England* (2) Lichowsky
This is a survey of the New England, including the basic principles of the Islamic
law in practice of the present law codes and an investigation of the Western influ-
ence on the law of the New England. (Not offered 1963-64.)
80 *Law and Psychology* (2) Allen, Zernoff
This course has two profiles including a survey of the basic principles of the Islamic
law in practice of the present law codes and an investigation of the Western influ-
ence on the law of the New England. (Not offered 1963-64.)

90 *Public Law and Communications Law* (2) Mayo
This course has two profiles including a survey of the basic principles of the Islamic
law in practice of the present law codes and an investigation of the Western influ-
ence on the law of the New England. (Not offered 1963-64.)

100 *Public Law and Regulations* (2) Mayo
This course has two profiles including a survey of the basic principles of the Islamic
law in practice of the present law codes and an investigation of the Western influ-
ence on the law of the New England. (Not offered 1963-64.)

110 *Public Law and Regulations* (2) Mayo
This course has two profiles including a survey of the basic principles of the Islamic
law in practice of the present law codes and an investigation of the Western influ-
ence on the law of the New England. (Not offered 1963-64.)

40. *Seminar: Taxation* (2) Barlow, Dunman
 General problems in federal income, estate and gift taxation involving factual situations and legal questions, and the preparation of memoranda at law, legislative drafting or other appropriate exercises. Historical problems or cases will be assigned to small groups for discussion and discussion. Representation subject to approval of instructor. (Prerequisite: Law 74 and 79. (RP) (Fall-evening.)

41. *Income Taxation of Foreign Business and Investment* (2) Hambrick
 The structure and purposes of the Federal Income Tax law applicable to foreign income, including considerations affecting the choice of methods of computing foreign income and treatment of controlled foreign corporations, allocation of income. Foreign income, credit for foreign taxes, principles and trends of U. S. tax law. (Not offered 1964-65.)

42. *Seminar: Trade Regulation* (2) Weston
 Case study of current problems relating to unfair trade practices and federal anti-trust laws. (RP) (Spring-evening.)

43. *A Seminar: Regulation of Transportation* (2-2) Hill
 Various problems in connection with the regulation of surface, water, and air transportation services will be considered. Matters to be treated include the historical development of the transportation industries and relevant federal legislation, the scope of federal regulation, the regulation of the weekly of transportation services, the public utility regulation of operating services, the regulation of transportation rates, the regulation of the interlocking process and the regulation of rate competition in the transportation industry, and mergers in the transportation industry. (Prerequisite: Law 74 and 79.)

44. *Land Use Planning* (2) Nutting
 Seminar studies in urban redevelopment and housing, with particular emphasis on zoning, urban renewal, urban federal and state legislation. (RP) (Fall-evening.)

45. *Antitrust Problems in Regulated Industries* (2) Cox
 A study of the problems of competition in regulated industries, the responsibility of government in the field, and the application and impact of the antitrust laws. Some emphasis on problems of proving complex economic and technical facts. (RP) (Fall-evening.)

Alumni and Allied Associations

THE GENERAL ALUMNI ASSOCIATION

The objectives of this Association are to serve the graduates who wish to promote themselves for honorable educational, literary, and scientific positions and to promote the general welfare of the University.

Eligible members are those who have contributed to any school of the University and also were left the University in good standing or any person who is or has been a member of the teaching, research, or administrative staff of the University or of the Board of Trustees of the University. Active members are those eligible persons who are current contributors to the life members of The George Washington University General Alumni Association, the Alumni Association of any school of the University, or contributors to the Alumni Support Program.

The Alumni Office is in Evans Hall, 2000 H Street NW., Washington, D. C. 20006.

All alumni are urged to keep the Alumni Office informed of changes of address or occupation and to supply information with regard to their future interest.

THE GEORGE WASHINGTON LAW ASSOCIATION

The George Washington Law Association, the organization of graduates of the Law School, was founded in 1912 and has been affiliated with the General Alumni Association since 1926. Its purposes as stated in the constitution are to promote the standards of legal education, to keep the alumni of the Law School in close contact with one another and especially with members of their own classes, to secure and publish at intervals information as to the education and careers of these members, and to further the interests of the Law School.

OFFICERS OF THE ASSOCIATION FOR THE YEAR 1963-64

President.—Paul Backus, LL.B. 1933, Evans Trust Building, Washington, D. C.
First Vice President.—Samuel J. Elj, LL.B. 1951, LL.M. 1952, 800 17th Street NW., Washington, D. C.
Second Vice President.—Clay A. Workman, LL.D. 1938, 1616 H Street NW., Washington, D. C.
Third Vice President.—W. Theodore Thomas, LL.B. 1938, Ring Building, Washington, D. C.

- Clarence T. Kopp, Esq., J.D., 1905, 1906, Connecticut Avenue NW., Wash-
ington, D. C.
- Alexander L. Swain, A.B. 1909, LL.B. 1911, 1900 Maryland Avenue,
S.W., Wash., D. C.
- Constance
- George Henry, LL.B., 1902, A.B. 1903, 1100 H Street NW., Washington, D. C.
- James C. Beane, LL.B. 1925, Union Trust Building, Washington, D. C.
- Samuel S. Crawford, Jr., A.B. 1908, LL.B. 1909, Municipal Court of Appeals, Wash-
ington, D. C.
- W. Dudley, LL.B. 1933, 700 10th Street NW., Washington, D. C.
- David Foster, Jr., J.D. 1906, 4017 Marry Lane, Alexandria, Va.
- Charles S. Foss, LL.B. 1920, 1100 10th Street NW., Washington, D. C.
- W. A. Cramer, J.D. 1906, Union Trust Building, Washington, D. C.
- W. E. Hughes, LL.B. 1914, 1214 William Penn Place, Pittsburgh, Pa.
- John S. Jackson, A.B. 1903, LL.B. 1905, 1025 Connecticut Avenue NW., Wash-
ington, D. C.
- C. Malone, LL.B. 1927, Southern Building, Washington, D. C.
- E. Hale, A.B. 1925, LL.B. 1929, LL.M. 1931, Colorado Building, Washing-
ton, D. C.
- H. Kaufman, A.B. 1906, LL.B. 1909, Southern Building, Washington,
D. C.
- E. Perkins, A.B. 1906, LL.B. 1912, Tenor Building, Washington, D. C.
- W. F. Shaw, LL.B. 1907, LL.M. 1909, 1925 Connecticut Avenue NW., Wash-
ington, D. C.
- W. S. Safford, LL.B. 1902, 617 S. Greenham, Arlington, Va.
- John A. McCoy, ex officio, LL.B. 1922, LL.M. 1928, The Superior Court, Los
Angeles, Calif.

Record for 1963-64

The Law School and Graduate School of Public Law

DEGREES CONFERRED

BACHELOR OF LAWS

FEBRUARY 21, 1963

Dean J. William Adams	Va	South State University, Washington	D.C.
B.S. 1959, University of Florida		A.B. 1960, The George Washington	
*William Paul Al	N.J.	B.S. 1959, University of Washington	
B.S. 1959, Villanova University		B.S. 1959, St. Vincent's Academy	MI
*Joseph James Al	D.C.	*John Edward Al	Va
B.S. 1959, University of Colorado		B.S. 1959, Lehigh University	
George H. Al	Me	*William Horace Dodd, Jr.	
B.S. 1959, Iowa State University of		A.B. 1959, College of William	Va
Science and Technology			
James Charles Baker, Jr.	Va	Robert James Baker, Jr.	Northwestern University
A.B. 1959, University of America		B.S. 1959, Northwestern University	
James William Baker	Va	Charles William Baker	Young University
A.B. 1959, Haver College		B.S. 1959, Young University	
A.M. 1959, University of Pennsylvania			
John Edward Baker	D.C.	Donald J. Baker	
B.S. 1959, University of Pennsylvania		A.B. 1959, University of Pennsylvania	
Barry Adams Baker	N.H.	Michael J. Baker	P.C.
B.S. 1959, University of New Hampshire		A.B. 1959, Wabash College	
Arthur Charles Baker, Jr.	Fla.	*Richard James Ehrlich	Va
B.S. 1959, University of Florida		A.B. 1955, Harvard University	
Edmund Baker	Me	*John Pope Ellis	Okla
B.S. 1959, University of Washington		A.B. 1959, Allegheny College	
		A.B. 1959, University of Oklahoma	Va
James Louis Baker, Jr.	Me	*William Flynn	
B.S. 1959, Maryland State Teachers		B.S. 1956, University of	
College, Frederick			
Robert M. Baker	Me	*Joseph Gibson	Va
A.B. 1959, University of		B.S. 1956, Rensselaer Polytechnic	
A.M. 1959, University of Law and			
Technology			
*John Baker	Pa	George Baker	South Dakota
B.S. 1959, Allegheny College		B.S. 1959, University of South Dakota	
*Richard William Baker	Va	Edward Morris Goody	P.C.
B.S. 1959, Oklahoma State University of		A.B. 1958, Hofstra College	
Agribusiness and Animal Science		Edward Goody	
James Douglas Cammermeyer	D.C.	A.B. 1959, University of Maryland	
A.B. 1959, Andrews College		Mark William Haase	Me
George Madison Cammer	Va	A.B. 1960, Washington and Lee University	
B.S. 1959, Pennsylvania State		William Harten	Me
University		William Harten	
Yakovlev G. Cammer, Jr.	Me	William Harten	
B.S. 1959, University of Maryland		1952, Fordham University	
*Cammer, Eugene A. Cammer	W.Va	James Haynes	
A.B. 1959, West Virginia Institute of		A.B. 1959, The George Washington	
Technology			
A.M. 1959, Marshall University			

* Degree conferred only completed summer 1963

U.S. Army Medical Research and Development Command	Armed Forces Medical Institute	N.Y.
University of California, San Diego	U.C.S.D. 9500 La Jolla Village Drive	Calif.
University of California, Los Angeles	U.C.L.A. 405 Hilgard Hall	Calif.
University of California, Berkeley	U.C.B. 747 Channing Hall	Calif.
University of Colorado	U.C. 1400 Evans Laboratory	Colo.
University of Connecticut	U.C. 366 Storrs Hall	Conn.
University of Delaware	U.D. 100 North College	Del.
University of Florida	U.F. 100 University Hall	Fla.
University of Georgia	U.G. 100 University Hall	Ga.
University of Illinois	U.I. 100 University Hall	Ill.
University of Iowa	U.I. 100 University Hall	Iowa
University of Kansas	U.K. 100 University Hall	Kan.
University of Kentucky	U.K. 100 University Hall	Kent.
University of Louisiana	U.L. 100 University Hall	La.
University of Maryland	U.M. 100 University Hall	Md.
University of Massachusetts	U.M. 100 University Hall	Mass.
University of Michigan	U.M. 100 University Hall	Mich.
University of Minnesota	U.M. 100 University Hall	Minn.
University of Missouri	U.M. 100 University Hall	Miss.
University of Nebraska	U.N. 100 University Hall	Nebr.
University of Nevada	U.N. 100 University Hall	Nev.
University of New Hampshire	U.N.H. 100 University Hall	N.H.
University of New Mexico	U.N.M. 100 University Hall	N.M.
University of New York	U.N.Y. 100 University Hall	N.Y.
University of North Carolina	U.N.C. 100 University Hall	N.C.
University of North Dakota	U.N.D. 100 University Hall	N.D.
University of Ohio	U.O. 100 University Hall	Ohio
University of Oklahoma	U.O. 100 University Hall	Okla.
University of Oregon	U.O. 100 University Hall	Ore.
University of Pennsylvania	U.P. 100 University Hall	Penn.
University of Rhode Island	U.R.I. 100 University Hall	R.I.
University of South Carolina	U.S.C. 100 University Hall	S.C.
University of South Dakota	U.S.D. 100 University Hall	S.D.
University of Tennessee	U.T. 100 University Hall	Tenn.
University of Texas	U.T. 100 University Hall	Texas
University of Utah	U.U. 100 University Hall	Utah
University of Vermont	U.V. 100 University Hall	Vt.
University of Virginia	U.V. 100 University Hall	Va.
University of Washington	U.W. 100 University Hall	Wash.
University of Wisconsin	U.W. 100 University Hall	Wis.
University of Wyoming	U.W. 100 University Hall	Wyo.

* 10-page introduction to *Stargate* 2, written by J.K.

*John Bernard Taylor A.B. 1908, The George Washington University D.C. 1910, Georgetown University, D.C.	Wash.	First Street Washington, D.C.	P.C.
David Albert Taylor, Jr. A.B. in Geol. 1901, The George Washington University	D.C.	Washington, D.C.	P.C.
*J. Edgar Taylor A.B. 1901, Washington University	Kan.	Washington, D.C.	A.B.
Albert Louis Venable A.B. 1900, University of Connecticut 1901, Washington University	MD	Washington, D.C.	A.B.
1901, Washington University A.B. 1911, University of Connecticut	D.C.	Washington, D.C.	A.B.
*Gerald Eugene Wall A.B. 1904, M.A. 1905, Cornell University	D.C.	Washington, D.C.	A.B.
Carl Henry Wall A.B. 1901, M.A. 1902, University of Connecticut	D.C.	Washington, D.C.	A.B.
Charles Carl Warrington III A.B. in Geol. 1905, University of Virginia	Va.	Washington, D.C.	A.B.
Richard Charles Wharton A.B. in Geol. 1908, University of Arkansas	Va.	Washington, D.C.	A.B.

JUNE 5 1963

Joseph George Auer B.S. 1909, Brown University	D.C.	Washington, D.C.	A.B.
William Richard Beck A.B. 1901, University of Maine	D.C.	Washington, D.C.	P.C.
Lawrence Joseph Bennett, Jr. B.S. 1905, University of North Carolina	MD	Washington, D.C.	P.C.
Richard George Bernier A.B. in G.E. 1905, Pacific University	Va.	Washington, D.C.	A.B.
Ernest William Burt B.S. 1908, The George Washington University	MD	Washington, D.C.	A.B.
William Ernest Burton B.S. 1901, University of Missouri	Va.	Washington, D.C.	A.B.
Raymond Frank Burroughs A.B. 1901, George College	Va.	Washington, D.C.	A.B.
Frank Christopher, Jr. B.S. 1901, University of North Dakota	Va.	Washington, D.C.	A.B.
George John Candler B.S. 1901, University of Virginia	MD	Washington, D.C.	A.B.
Doris Anne Charnick A.B. in Geol. 1901, The George Washington University	D.C.	Washington, D.C.	A.B.
William Richard Clegg, Jr. B.S. 1901, Virginia Military Institute	Va.	Washington, D.C.	A.B.
Doris George Cline B.S. in M.S. 1901, Washington University	MD	Washington, D.C.	A.B.
James Charles Davis, Jr. B.S. in Geol. 1901, Kansas University	Va.	Washington, D.C.	A.B.
Michael Herbert Davis B.S. 1901, U.S. Naval Academy	Va.	Washington, D.C.	A.B.
Raymond George Dean A.B. 1901, Western Young University	D.C.	Washington, D.C.	A.B.
John Louis Deane III A.B. 1901, Tulane University	Va.	Washington, D.C.	A.B.
Paul Henry Dixon B.S. 1901, Virginia Polytechnic Institute	Va.	Washington, D.C.	A.B.
Robert James Eddy B.S. 1901, Franklin University	Va.	Washington, D.C.	A.B.
Joseph Henry B.S. 1901, The George Washington University	MD	Washington, D.C.	A.B.
A.C. 1901, Georgetown University	Va.	Washington, D.C.	A.B.
Paul James Ellis III A.B. 1901, The George Washington University	Va.	Washington, D.C.	A.B.
Robert James Evans B.S. 1901, Washington State College	Va.	Washington, D.C.	A.B.
William Vernon Everett A.B. in Geol. 1901, The George Washington University	Va.	Washington, D.C.	A.B.
Howard Henry Faxon A.B. 1901, Boston College	N.Y.	Washington, D.C.	A.B.
Joe Walsh Fleming II A.B. 1901, University of Arkansas	Ark.	Washington, D.C.	A.B.

* Deceased; name preceded by "deceased" in original list.

[illegible]

FEBRUARY 22 1964

FEBRUARY 22, 1964		
1. [illegible] [illegible]	10	[illegible] [illegible]
2. [illegible] [illegible]	M.A.	[illegible] [illegible]
3. [illegible] [illegible]	W.	[illegible] [illegible]
4. [illegible] [illegible]	M.A.	[illegible] [illegible]
5. [illegible] [illegible]	Ph.	[illegible] [illegible]
6. [illegible] [illegible]	M.	[illegible] [illegible]
7. [illegible] [illegible]	Vo	[illegible] [illegible]
8. [illegible] [illegible]	S.D.	[illegible] [illegible]
9. [illegible] [illegible]	M.	[illegible] [illegible]

* Dates recorded September 30, 1964

Edward Bernard Dineen B.S. in M.E. 1941, South Dakota State College of Agriculture and Mechanical Arts	Ed	Nov 1940, Johns Hopkins University B.S. in E.E. 1941, Iowa State University	Al
Joseph Richard Dinsmore A.B. 1941, Ohio State University	Fla	H. 1941, University of California, Berkeley	NY
Henry Dittus B.S. in Mech. Eng. 1949, Washington University	Va	A.B. 1941, Cornell University	NY
Robert Murray Doss A.B. 1943, Cornell University	D.C.	A.B. 1943, The George Washington University	Va
M.E. 1942, University of Minnesota		Ronald Eugene Doss B.S. in E.E. 1941, University of Illinois	Va
Charles Henry Doss B.S. in M.E. 1941, Purdue University	Va	Thomas Edgar Doss B.S. 1944, Tennessee State University	Va
Robert Bruce Doss A.B. 1941, University of Virginia	Va	Henry Doss B.S. 1941, Yale University	Va
Donald William Doss B.S. 1944, University of Michigan	Va	Edward John Doss B.S. in E.E. 1941, Newark College of Engineering	Va
Harold Louis Doss A.B. 1942, The George Washington University	Va	Sandra Paul Doss B.S. in E.E. 1941, North Carolina University	Va
Doris Doss B.S. in Phys. Eng. 1941, University of Alabama	Va	Harold Doss B.S. 1941, University of Pennsylvania	Va
Morton Edwin Doss A.B. 1941, Bowling Green University	Utah	James Michael Doss B.S. 1941, Missouri State University	Pa
James V. Doss B.S. 1941, U. S. Coast Guard Academy	Conn	Alvin Edgar Doss B.S. in E.E. 1941, Ohio State University	NY
John Henry Doss B.S. 1941, Auburn University	Va	John Doss B.S. 1941, University of California, Berkeley	Va
Harold Gene Doss B.S. E. 1941, Georgia Institute of Technology	Me	Stanley Clay Doss A.B. 1941, Stanford University	Al
Conrad Henry Doss B.S. 1941, University of Utah	Va	Robert Doss B.S. 1941, Ohio State University	Va
Stephen E. Doss A.B. 1941, The George Washington University	D.C.	James Doss B.S. 1941, University of New Hampshire	Va
David Clifford Doss A.B. 1941, Lehigh University	Me	Louis J. Doss B.S. in E.E. 1941, City University of New York	W
Alfred Edward Doss B.S. in E.E. 1941, Montana State College	Va	M.R.A. 1941, Cornell University	NY
John Franklin Doss B.S. 1941, Pennsylvania State University	D.C.	Marion Ross Doss B.S. 1941, University of Wisconsin	Va
Charles Keith Doss B.S. 1941, Pennsylvania University of Berkeley	Va	William Doss B.S. 1941, Bowdoin College	Pa
David Kenneth Doss A.B. 1941, Missouri State College	Iowa	Thomas Albert Doss B.S. 1941, Louisiana University	Pa
John W. Doss B.S. 1941, University of Maryland	D.C.	James Doss B.S. 1941, University of California, Berkeley	Al
John Anthony Doss B.S. 1941, University of New Hampshire	Me	James Doss B.S. in E.E. 1941, Pennsylvania State University	Me
Henry Doss B.S. 1941, U. S. Coast Guard Academy	Wash	Robert Doss B.S. in E.E. 1941, University of Maryland	Wash
LAVINE (late Doss) B.S. 1941, Iowa State University of Science and Technology	Me	Robert Doss B.S. 1941, A.B. 1941, University of Washington	Me
James Allen Doss B.S. 1941, University of Virginia	Va	Marion Ross Doss B.S. in E.E. 1941, University of New Hampshire	NY
William Doss (Hobby III) B.S. 1941, University of Illinois	Pa	William Doss B.S. 1941, University of New Hampshire	D.C.
Morton Paul Doss B.S. in M.E. 1941, Newark College of Engineering	Va	Thomas Doss B.S. 1941, University of New York	NY
Harold John Doss B.S. 1941, Washington College	Ohio	William Doss B.S. 1941, Ohio State University	Me
Robert Eugene Doss B.S. 1941, University of Cincinnati	Ohio	Robert Doss B.S. 1941, Missouri State College	Tex
Edward William Doss B.S. 1941, Lehigh University	Me	James Doss B.S. 1941, University of Michigan	Pa
David Doss B.S. 1941, University of Virginia	N.J.	James Doss B.S. 1941, North Texas State College	W Va
Joseph Doss B.S. 1941, U. S. Coast Guard Academy	Me	Harold Doss B.S. in E.E. 1941, Washington University	W Va
B.S. in Mech. Eng. 1941, U. S. Naval Postgraduate School		Robert Doss B.S. in Mining Eng. 1951, West Virginia University	Idaho
M.M.E. 1941, Regional Polytechnic Institute		Marion Ross Doss B.S. 1941, Idaho State College	Me
Robert Doss B.S. in E.E. 1941, Kansas State University	Va	Alvin Edgar Doss B.S. 1941, University of Maryland	

* Degree awarded September 30, 1963.

JUNE 5, 1963

Joseph Lynn Powell	Ohio	Harvard Law School	100
A.B. 1936, University of Michigan		B.S. 1939, Ohio State University	N.Y.
A.M. 1938, Ohio State University		Ph.D. 1941, Ohio State University	
Member, Phi Kappa Phi	Ohio	John Jay College	V.
A.P. 1938, A.M. 1939, Albany College of		B.S. 1941, City College, New York	
Education		Ph.D. 1944, Quinn	M.
Lecturer, George Washington	Va.	Ph.D. 1946, Fordham Young University	
A.B. 1934, B.S. 1935, M.S. 1935,		Ph.D. 1938, Butler	
University of California		B.S. 1938, U.S. Naval Academy	
Dean, Walter Mason	Va.		
B.S. in Mathematics 1931, University of			
Washington			

FEBRUARY 22, 1964

Joseph David Carter	Md.	East Texas State	D.C.
A.B. 1936, The George Washington		B.S. 1938, George Washington	
University		Ph.D. 1939, George Washington	
Frank Townsend Hunt, Jr.	Ill.	A.B. 1937, M.A. 1939, M.S. in E.I.	M.
A.B. 1935, Penn State University		Ph.D. 1940, University of Illinois	
George Allen Carter	Va.	Western Kentucky	N.Y.
B.A. 1937, M.A. 1938, M.E. 1940, University		B.S. 1938, York University	
of Pennsylvania		Ph.D. 1941, University of South	
George Henry Carter	Md.	B.S. 1938, M.A. 1939, University of South	Va.
B.S. 1938, University of Illinois		Ph.D. 1941, University of South	
Lecturer, George Washington	Va.	Ph.D. 1941, University of South	
B.A. 1937, M.S. 1938, M.E. 1940,		Ph.D. 1941, University of South	
University of Pennsylvania		Ph.D. 1941, University of South	
Ph.D. 1941, University of Pennsylvania	Md.	Ph.D. 1941, University of South	
B.S. 1938, University of Kentucky		Ph.D. 1941, University of South	

MASTER OF LAWS

FEBRUARY 21, 1963

Leon Shoup
A.B. 1934, The George Washington
University
LL.B. 1937, University of Miami

D.C.

JUNE 5, 1963

George David Powell	Va.	Richard Warren Metz	Md.
Ph.D. 1936, Xavier University		A.B. 1959, Westminster College	
LL.B. 1961, Georgetown University		LL.B. 1962, Duke University	Ark.
John Arthur Galt	D.C.	William David Newbern	Idaho
A.B. 1938, West University		A.B. 1961, LL.B. 1961, University of	
LL.B. 1961, University of Houston		Arkansas	
Henry Lee Mott, Jr.	Ill.	John Bernard Tacke	
A.B. 1938, LL.B. 1939, Harvard University		A.B. 1956, St. Edward's Seminary	
		LL.B. 1963, The George Washington	
		University	

FEBRUARY 22, 1964

George David Powell	Md.	Edward Thomas Kenny	N.Y.
A.B. 1938, LL.B. 1961, Xavier University		A.B. 1938, LL.B. 1935, Fordham University	
Ph.D. 1939, University of Miami	D.C.	Walter W. Mott	
B.S. 1938, University of Maryland		A.B. 1938, University of the South	
Ph.D. 1941, University of Maryland		LL.B. 1961, Washington and Lee University	Va.
John Arthur Galt	Ill.	B.S. 1938, University of the South	
A.B. 1938, LL.B. 1961, Harvard University		Ph.D. 1941, University of the South	
Ph.D. 1941, University of Maryland		Ph.D. 1941, University of the South	
LL.B. 1961, Xavier University		Ph.D. 1941, University of the South	

Edwards awarded September 8, 1963

FEBRUARY 21 1963

Ethiopia *1 George Woldemariam Ethiopia
Department of Law 1978 University College
of Addis Ababa, Ethiopia

JUNE 5 1963

Michael Howard McNair
LL.M., 1986, University of Rochester
College of Law, Troy

FEBRUARY 22 1964

M. J. F. D. L.

U. S. I. M. University of Baghdad College
of Law, Iraq

FEBRUARY 21 1963

D. A. B. S., Department of History, Cuba
University of Havana, Cuba

FEBRUARY 22 1964

Alexander R. Heston
A.M.
H.E. 1907, University of Munich, Germany

Va.

JUNE 5 1963

*Karl F. Frost, U.S. Military Academy
F.L.H. Hall, University of Pennsylvania
University of South Carolina
General Engineering Construction*

1. The first step is to identify the problem or question that needs to be answered.

STUDENTS REGISTERED IN THE LAW SCHOOL
OR THE GRADUATE SCHOOL OF PUBLIC LAW

SPRING SEMESTER 1963-64

A		B	
Abund, Charles D. B.A. 1952, LL.B. 1954, University of California	Va.	Wiley, Joseph F. A.B. 1951, University of New Mexico	N.M.
Adams, M. 1955, The George Washington University		Wiley, Richard F. B.S. in M.E. 1959, Purdue University	D.C.
Adams, Kenneth J.H. 1955, University of Indiana	Indiana	Wiley, Robert L. A.B. 1955, American University	Mich.
Adams, John C. LL.B. 1955, State University of South Dakota	D.C.	Wiley, Robert H. B.S. 1955, State College of Iowa	D.C.
Adams, Thomas A. B.S. 1955, Newark College of Engineering	N.J.	Wiley, Robert J. B.A. 1955, Princeton University	N.Y.
Adams, Dan E. Jr. B.S. 1955, University of Pennsylvania	D.C.	Wiley, Robert W. B.S. 1955, Brigham Young University	Mich.
Adams, David M. LL.B. 1955, Episcopal University Law College	Ind.	Wiley, Michael E. B.S. 1955, University of Maryland	Iowa
Adams, James R. A.B. 1955, A.M. 1956, University of California at Los Angeles	Va.	Wiley, William M. A.B. 1955, University of Denver	N.C.
Adams, John S. B.S. 1955, University of Florida	Fla.	Barrington, Carl A., Jr. A.B. 1958, LL.B. 1962, University of North Carolina	Mich.
Adams, Raymond F. A.B. 1955, University of Missouri	Mo.	Barrington, Melvin A.B. 1955, Boston University	D.C.
Adams, Thomas A.B. 1955, Duke University	N.J.	Barrington, Richard A. B.S. 1955, Eastern University	
Adams, Paul D. B.S. 1955, University of Indiana	Indiana	Barrington, J. D. LL.B. 1952, The George Washington University	Ind.
Adams, H. G. A. B.A. 1955, Purdue University	Va.	Barrington, Robert J. B.S. in M.E. 1959, University of Pittsburgh	D.C.
Adams, Richard A. B.S. 1955, Iowa University of Iowa	Mich.	Barrington, Donald F. B.A. 1955, The George Washington University	Mich.
Adams, Frederick J. Jr. A.B. 1955, Maryland College	N.Y.	Barrington, E. J. B.S. 1955, University of Maryland	Unh.
Adams, Alan E. A.B. 1955, Maritime College of the United States	Conn.	Barrington, James H. A.B. 1955, Brigham Young University	Mich.
Adams, Robert M. B.S. 1955, Georgia State University	Calif.	Barrington, Wiley E. A.B. 1955, Michigan State University of Agriculture and Applied Science	N.Y.
Adams, Charles W. A.B. 1955, Washington University	Mo.	Barrington, Richard M. B.M.E. 1955, Rensselaer Polytechnic Institute	Pa.
Adams, John C. A.B. 1955, University of Maryland	Mich.	Barrington, John B. B.S. 1955, University of Scranton	Calif.
Adams, John C. B.S. 1955, University of Maryland	Va.	Barrington, Roger B. A.B. 1955, Brigham Young University	S.C.
Adams, John C. B.S. 1955, University of Maryland	D.C.	Barrington, Townsend M., Jr. B.Ch.E. 1958, Georgia Institute of Technology	N.Y.
Adams, John C. B.S. 1955, University of Maryland	D.C.	Barrington, Sheldon M. B.M.E. 1955, City University of New York	Mich.
Adams, John C. B.S. 1955, University of Maryland	D.C.	Bennett, Fred W. A.B. 1955, American University	Tenn.
Adams, John C. B.S. 1955, University of Maryland	D.C.	Bennett, Robert C., Jr. A.B. 1955, Texas Agricultural and Mechanical College	N.D.
Adams, John C. B.S. 1955, University of Maryland	D.C.	Bennison, John C. A.B. 1955, Pomona College	Va.
Adams, John C. B.S. 1955, University of Maryland	D.C.	Benson, Ingram T. A.B. 1955, Carleton College	Ind.
Adams, John C. B.S. 1955, University of Maryland	D.C.	Bentzen, Michael P. A.B. 1955, DePauw University	Mich.
Adams, John C. B.S. 1955, University of Maryland	D.C.	Berg, Morton A.B. in Govt. 1959, The George Washington University	
Adams, John C. B.S. 1955, University of Maryland	D.C.		

Brace, Peter I. B.S. 1941, City University of New York	N.Y.	Brace, Arthur L. B.S. 1941, Georgia Institute of Technology	Md.
Brace, Peter I. B.S. 1941, City University of New York	N.Y.	J.D. 1946, The George Washington University	
Brace, Peter I. B.S. 1941, City University of New York	N.Y.	Brace, William D. B.S. 1941, Howard University	Ga.
Brace, Peter I. B.S. 1941, City University of New York	N.Y.	Brace, Gary M. A.B. 1941, University of Kansas	Va.
Brace, Peter I. B.S. 1941, City University of New York	N.Y.	Brace, Jerry H. B.S. 1941, Pennsylvania State University	Pa.
Brace, Peter I. B.S. 1941, City University of New York	N.Y.	Brace, Joseph G. A.B. 1941, State University of Iowa	Iowa
Brace, Peter I. B.S. 1941, City University of New York	N.Y.	Brace, John J. B.S. 1941, University of Scranton	Pa.
Brace, Peter I. B.S. 1941, City University of New York	N.Y.	Brace, David W. B.S. 1941, Rutgers University	Va.
Brace, Peter I. B.S. 1941, City University of New York	N.Y.	Brace, David L. B.S. 1941, Eastern Virginia University	D.C.
Brace, Peter I. B.S. 1941, City University of New York	N.Y.	Brace, David A. A.B. 1941, The George Washington University	Va.
Brace, Peter I. B.S. 1941, City University of New York	N.Y.	Brace, James E. [Jr.] B.S. 1941, U.S. Coast Guard Academy	Calif.
Brace, Peter I. B.S. 1941, City University of New York	N.Y.	Brace, Paul R. A.B. 1941, University of Kansas	Kans.
Brace, Peter I. B.S. 1941, City University of New York	N.Y.	Brace, Robert E. A.B. 1941, Brown University	N.Y.
Brace, Peter I. B.S. 1941, City University of New York	N.Y.	Brace, Arnold D. B.S. 1941, The George Washington University	Ohio
Brace, Peter I. B.S. 1941, City University of New York	N.Y.	Brace, Fred G. A.B. 1941, Iowa State University	Va.
Brace, Peter I. B.S. 1941, City University of New York	N.Y.	Brace, Mary F. A.B. 1941, American International College	Conn.
Brace, Peter I. B.S. 1941, City University of New York	N.Y.	Brace, Ralph M. A.B. 1941, Ohio University	Va.
Brace, Peter I. B.S. 1941, City University of New York	N.Y.	Brace, Gary J. A.B. 1941, University of Nevada	Nev.
Brace, Peter I. B.S. 1941, City University of New York	N.Y.	Brace, John K. A.B. 1941, Yale University	Va.
Brace, Peter I. B.S. 1941, City University of New York	N.Y.	Brace, Joseph J. A.B. 1941, Pennsylvania State University	Pa.
Brace, Peter I. B.S. 1941, City University of New York	N.Y.	Brace, Joseph Z. A.B. 1941, Pennsylvania State University	D.C.
Brace, Peter I. B.S. 1941, City University of New York	N.Y.	Brace, Joseph Z. B.S. 1941, The George Washington University	
Brace, Peter I. B.S. 1941, City University of New York	N.Y.	Brace, Joseph G. A.B. 1941, Eastern University	Va.
Brace, Peter I. B.S. 1941, City University of New York	N.Y.	Brace, John J. B.S. 1941, Virginia University	Va.
Brace, Peter I. B.S. 1941, City University of New York	N.Y.	Brace, Mary Z. B.S. 1941, University of Utah	Va.
Brace, Peter I. B.S. 1941, City University of New York	N.Y.	Brace, Charles F. A.B. 1941, Brown University	D.C.
Brace, Peter I. B.S. 1941, City University of New York	N.Y.	Brace, Thomas W. J. A.B. 1941, University of Florida	Md.
Brace, Peter I. B.S. 1941, City University of New York	N.Y.	Brace, Thomas J. B.S. 1941, Georgia Institute of Technology	Va.
Brace, Peter I. B.S. 1941, City University of New York	N.Y.	Brace, Thomas J. B.S. 1941, Howard University	
C			
Brace, Peter I. B.S. 1941, City University of New York	N.Y.	Cabana, Donald S. A.B. 1941, Johns Hopkins University	N.Y.
Brace, Peter I. B.S. 1941, City University of New York	N.Y.	Cabana, Lynn G. Jr. B.S. 1941, Georgia Institute of Technology	Ga.
Brace, Peter I. B.S. 1941, City University of New York	N.Y.	Cabana, John E. B.S. 1941, State University of Iowa	Va.
Brace, Peter I. B.S. 1941, City University of New York	N.Y.	Cabana, John E. M.S. 1941, B.S. 1941, The George Washington University	
Brace, Peter I. B.S. 1941, City University of New York	N.Y.	Cabana, John E. A.B. 1941, The George Washington University	Pa.
Brace, Peter I. B.S. 1941, City University of New York	N.Y.	Cabana, William A. B.S. 1941, Brigham Young University	Ariz.
Brace, Peter I. B.S. 1941, City University of New York	N.Y.	Cabana, James W. [Jr.] A.B. 1941, Oklahoma Baptist University	Va.
Brace, Peter I. B.S. 1941, City University of New York	N.Y.	Cabana, Henry L. A.B. 1941, University of Virginia	Va.
Brace, Peter I. B.S. 1941, City University of New York	N.Y.	Cabana, Henry L. B.S. 1941, Washington and Lee University	

The Life School			
Adams, Mark E.	D.C.	Heinrich, Susan E.	N.Y.
A.B. 1961, Boston University		A.B. 1961, Boston University	
Adams, David B.	Conn.	Helen, Susan A.	Del.
B.S. 1961, University of Maine		B.S. 1962, Bowling Green State University	
Adams, James H.	Idaho	Hickman, John W., Jr.	Iowa
B.S. 1961, University of Idaho		A.B. 1956, The George Washington University	
Adams, David A.	Ohio	Holmes, William G.	Va.
B.S. 1961, University of Tennessee		B.S. 1961, A.B. 1962, University of North Carolina	
Adams, James P.	D.C.	Holmes, John C.	Pa.
B.S. 1961, Pennsylvania State University		A.B. 1961, Dickinson College	
Adams, Katherine A.	N.Y.	Holmes, Michael H.	Conn.
B.S. 1961, The George Washington University		B.S. 1962, College of the Holy Cross	
Adams, David	Mo.	Holmes, David H., Jr.	Va.
A.B. 1961, University of Missouri		A.B. 1961, L.L.B. 1962, The George Washington University	
Adams, James I.	D.C.	Holmes, Francis R.	N.Y.
B.S. 1961, University of Maryland		B.S. 1961, M.A. 1962, University of South Carolina	
Adams, James W.	Ill.	Holmes, William L.	W.Va.
B.S. 1961, Fordham University		B.S. 1961, Morris Harvey College	
Adams, James H.	D.C.	Holmes, George A.	N.Y.
B.S. 1961, American College		B.S. 1961, B.A. 1962, Lafayette College	
Adams, James C.	D.C.	Holmes, David L.	Ill.
B.S. 1961, American College		A.B. 1961, Union College and University	
Adams, James H.	N.J.	Holmes, John H.	Va.
B.S. 1961, University of Missouri		B.S. 1961, University of North Carolina	
Adams, James K.	Conn.	Holmes, Mary A.	D.C.
B.S. 1961, Yale University		A.B. 1961, The George Washington University	
Adams, James	Pa.	Holmes, William B.	N.Y.
B.S. 1961, Pennsylvania State University		A.B. 1961, University of Wisconsin	
Adams, James	Mo.	Holmes, John H.	Ill.
B.S. 1961, University of Missouri		B.S. 1961, University of Missouri	
Adams, James	Mo.	Holmes, John H.	Ill.
B.S. 1961, University of Missouri		B.S. 1961, University of Missouri	
Adams, James	Conn.	Holmes, John H.	Ill.
B.S. 1961, University of Connecticut		B.S. 1961, University of Missouri	
Adams, James	Va.	Holmes, John H.	Ill.
B.S. 1961, University of Virginia		B.S. 1961, University of Missouri	
Adams, James	N.J.	Holmes, John H.	Ill.
B.S. 1961, University of New Jersey		B.S. 1961, University of Missouri	
Adams, James	Pa.	Holmes, John H.	Ill.
B.S. 1961, University of Pennsylvania		B.S. 1961, University of Missouri	
Adams, James	D.C.	Holmes, John H.	Ill.
B.S. 1961, University of the District of Columbia		B.S. 1961, University of Missouri	
Adams, James	Va.	Holmes, John H.	Ill.
B.S. 1961, University of Virginia		B.S. 1961, University of Missouri	
Adams, James	Mo.	Holmes, John H.	Ill.
B.S. 1961, University of Missouri		B.S. 1961, University of Missouri	
Adams, James	Ill.	Holmes, John H.	Ill.
B.S. 1961, University of Illinois		B.S. 1961, University of Missouri	
Adams, James	Va.	Holmes, John H.	Ill.
B.S. 1961, University of Virginia		B.S. 1961, University of Missouri	
Adams, James	Mo.	Holmes, John H.	Ill.
B.S. 1961, University of Missouri		B.S. 1961, University of Missouri	
Adams, James	Ill.	Holmes, John H.	Ill.
B.S. 1961, University of Illinois		B.S. 1961, University of Missouri	
Adams, James	Va.	Holmes, John H.	Ill.
B.S. 1961, University of Virginia		B.S. 1961, University of Missouri	
Adams, James	Mo.	Holmes, John H.	Ill.
B.S. 1961, University of Missouri		B.S. 1961, University of Missouri	
Adams, James	Ill.	Holmes, John H.	Ill.
B.S. 1961, University of Illinois		B.S. 1961, University of Missouri	
Adams, James	Va.	Holmes, John H.	Ill.
B.S. 1961, University of Virginia		B.S. 1961, University of Missouri	
Adams, James	Mo.	Holmes, John H.	Ill.
B.S. 1961, University of Missouri		B.S. 1961, University of Missouri	
Adams, James	Ill.	Holmes, John H.	Ill.
B.S. 1961, University of Illinois		B.S. 1961, University of Missouri	
Adams, James	Va.	Holmes, John H.	Ill.
B.S. 1961, University of Virginia		B.S. 1961, University of Missouri	
Adams, James	Mo.	Holmes, John H.	Ill.
B.S. 1961, University of Missouri		B.S. 1961, University of Missouri	
Adams, James	Ill.	Holmes, John H.	Ill.
B.S. 1961, University of Illinois		B.S. 1961, University of Missouri	
Adams, James	Va.	Holmes, John H.	Ill.
B.S. 1961, University of Virginia		B.S. 1961, University of Missouri	
Adams, James	Mo.	Holmes, John H.	Ill.
B.S. 1961, University of Missouri		B.S. 1961, University of Missouri	
Adams, James	Ill.	Holmes, John H.	Ill.
B.S. 1961, University of Illinois		B.S. 1961, University of Missouri	
Adams, James	Va.	Holmes, John H.	Ill.
B.S. 1961, University of Virginia		B.S. 1961, University of Missouri	
Adams, James	Mo.	Holmes, John H.	Ill.
B.S. 1961, University of Missouri		B.S. 1961, University of Missouri	
Adams, James	Ill.	Holmes, John H.	Ill.
B.S. 1961, University of Illinois		B.S. 1961, University of Missouri	
Adams, James	Va.	Holmes, John H.	Ill.
B.S. 1961, University of Virginia		B.S. 1961, University of Missouri	

Olester, Jack H.
A.B. 1962, LL.B. 1966, University of
Pennsylvania
Olson, Douglas E.
B.S. 1966, M.S. 1966, University of
Wisconsin
O'Neill, James Gerard
B.S. 1961, M.E. 1961, Northeastern University
Osborn, John L.
A.B. 1941, St. Cloud College
LL.B. 1948, University of Minnesota
Oswald, Robert L.
A.B. 1966, University of Maryland

P

Packer, John S.
A.B. 1966, Tulane University
Patterson, Charles M., Jr.
A.B. 1961, Tulane College
LL.B. 1961, University of Nebraska
Paxon, Thomas A.
B.B.A. 1966, Clarkson College of Technology
Payal, Paul L.
A.B. 1961, University of Maryland
Patterson, N. Merrill
A.B. 1966, Georgia University
M.B.A. 1966, Columbia University
Perry, Samuel Marion
B.S. 1966, St. Vincent College
Patt, John A.
A.B. 1966, Washington University
LL.B. 1962, Washington and Lee University
Patterson, Michael J.
A.B. 1966, University of Missouri
Patterson, Andrew F. P.
B.S. 1962, Furber University
A.M. 1966, University of California at
Berkeley
Patt, Arthur Thomas
A.B. 1966, Furber University
Patt, Richard W.
A.B. 1966, DePauw University
Patterson, Herbert A.
B.S. 1966, Georgia Institute of Technology
Patterson, John George
A.B. 1961, Florida College
Patterson, Robert T.
A.B. 1966, University of Florida
Patt, Robert R.
B.S. 1966, Georgetown University
J.D. 1966, The George Washington
University
Patt, Robert A.
B.S. 1961, Pennsylvania State University
Patterson, Thomas William
A.B. 1961, The George Washington
University
Patt, Robert Y.
B.B.A. 1962, University of Detroit
LL.B. 1966, Georgetown University
Patterson, George L.
B.S. 1966, University of Wisconsin
Patterson, Joseph E.
B.S. 1966, Carnegie College
Patterson, Edwin L.
B.S. 1966, Illinois Wesleyan University
Patterson, James H.
B.S. 1966, Ohio State University
Patterson, William J. J.
A.B. 1961, Cornell University
Patt, Allen S.
A.B. 1961, American University
Patterson, Michael M.
A.B. 1961, University of Maryland
Patt, Louis Thomas
B.S. 1966, University of Texas
Patterson, David L.
B.S. 1966, University of Virginia
Patt, Henry H.
B.S. 1966, University of Maryland

Pa. Plant, Lawrence B.
B.Ch.E. 1966, University of Detroit
Patterson, Frank B.
B.S. 1966, U.S. Military Academy
LL.B. 1966, The George Washington
University
Patterson, Leon, Humbert D.
A.B. 1961, LL.B. 1967, University of
Puerto Rico
A.M. 1966, Tulane University
Patt, James K.
A.B. 1966, Nebraska Wesleyan University
Patt, Albert H.
A.B. 1964, Dartmouth College
LL.B. 1967, Harvard University
Patterson, Thomas Philip
A.B. 1966, University of Buffalo
Patt, Stanley B. III
A.B. 1961, Hillsdale College
Patt, Morton H.
A.B. in Govt. 1962, The George Washington
University
Patterson, John I.
A.B. 1962, Ohio University
Patt, Clifford B., Jr.
B.S. 1967, Drexel Institute of Technology
Patt, Robert L.
B.S. 1966, Morris Harvey College
Patt, Marion R.
B.S. 1966, University of Illinois
Patt, John A., Jr.
A.B. 1961, The George Washington
University
Patt, Ruth L.
A.B. 1961, The George Washington
University

Q

Quinn, Harry W.
A.B. 1966, Dartmouth College
R
Rattmann, Joseph E., II
A.B. 1961, University of Notre Dame
Rattmann, David G.
A.B. 1966, Gonzaga University
Rattmann, William S.
B.S. 1966, University of
Washington
Rattmann, Robert L.
A.B. 1966, Boston University
J.D. 1966, University of Michigan
Rattmann, Gerald L.
A.B. 1966, Northeastern University
Rattmann, John Paul L.
A.B. in Govt. 1964, The George Washington
University
Rattmann, Irving S.
B.S. 1961, 1962, Washington University
Rattmann, Leonard
B.S. 1966, University of Connecticut
LL.B. 1966, The George Washington
University
Rattmann, Arthur
A.B. 1966, Boston College
Rattmann, Robert L.
A.B. 1966, University of Washington
Rattmann, Richard M. III
B.S. 1966, Vanderbilt University
Rattmann, Thomas G.
A.B. 1966, University of Washington
Rattmann, David L.
B.S. 1966, Case Institute of
Technology
Rattmann, James
B.M. 1966, 1969, Rensselaer Polytechnic
Institute
Rattmann, James M.
B.S. 1966, U.S. Naval Academy

William C. Williams	Va	Rupp, Lawrence H.	Va
University of Virginia		1911-1912, Wayne State University	
John E. Williams	Md	Rupp, Ernest Louis	Va
University of Maryland		U.S. 1900, U.S. Military Academy	
John E. Williams	Utah	5	
University of Utah		Sullivan, Charles E.	Md
University of Utah	Va	1911-1912, University of Maryland	
University of Utah		Sullivan, Samuel A.	Ill
University of Utah		U.S. 1911-1912, University of Illinois	
University of Utah	D.C.	Sullivan, Samuel J.	Va
University of Utah		U.S. 1911-1912, Cornell University	
University of Utah	N.M.	Sullivan, Samuel C.	Va
University of Utah		U.S. 1911-1912, American University	
University of Utah	D.C.	Sullivan, Samuel C.	
University of Utah		U.S. 1911-1912, Georgetown University	
University of Utah	Wash	Sullivan, Samuel C.	D.C.
University of Utah		U.S. 1911-1912, A.M. 1900, Ph.D. 1901	
University of Utah		Sullivan, Samuel C.	
University of Utah	Pa	Sullivan, Samuel C.	N.J.
University of Utah		U.S. 1911-1912, Pennsylvania College	
University of Utah	Pa	Sullivan, Samuel C.	Pa
University of Utah	Va	Sullivan, Samuel C.	
University of Utah		U.S. 1911-1912, University of Virginia	
University of Utah		Sullivan, Samuel C.	D.C.
University of Utah		U.S. 1911-1912, Washington State College	
University of Utah		Sullivan, Samuel C.	Va
University of Utah		U.S. 1911-1912, University of Virginia	
University of Utah		Sullivan, Samuel C.	N.Y.
University of Utah		U.S. 1911-1912, University of Virginia	
University of Utah	D.C.	Sullivan, Samuel C.	Pa
University of Utah		U.S. 1911-1912, West Virginia University	
University of Utah		Sullivan, Samuel C.	W.Va
University of Utah		U.S. 1911-1912, University of Kentucky	
University of Utah		Sullivan, Samuel C.	D.C.
University of Utah	D.C.	U.S. 1911-1912, University of Michigan	
University of Utah		Sullivan, Samuel C.	N.Y.
University of Utah	Ill	U.S. 1911-1912, Fordham University	
University of Utah		Sullivan, Samuel C.	Va
University of Utah	D.C.	U.S. 1911-1912, Indiana University	
University of Utah		Sullivan, Samuel C.	D.C.
University of Utah	Pa	U.S. 1911-1912, University of Kansas	
University of Utah		Sullivan, Samuel C.	D.C.
University of Utah		U.S. 1911-1912, U.S. Military Academy	
University of Utah		U.S. 1911-1912, University of Georgia	
University of Utah		Sullivan, Samuel C.	N.Y.
University of Utah		U.S. 1911-1912, University of Pennsylvania	
University of Utah		Sullivan, Samuel C.	N.Y.
University of Utah		U.S. 1911-1912, University of Maryland	
University of Utah		Sullivan, Samuel C.	N.Y.
University of Utah		U.S. 1911-1912, Washington Teachers College	
University of Utah		Sullivan, Samuel C.	Ind
University of Utah		U.S. 1911-1912, University of Wisconsin	
University of Utah		Sullivan, Samuel C.	Ill
University of Utah		U.S. 1911-1912, Mount Union College	
University of Utah	D.C.	Sullivan, Samuel C.	D.C.
University of Utah		U.S. 1911-1912, Wayne State University of	
University of Utah		Michigan and Detroit School	
University of Utah	Md	Sullivan, Samuel C.	Conn
University of Utah		U.S. 1911-1912, University of Connecticut	
University of Utah		Sullivan, Samuel C.	Pa
University of Utah		U.S. 1911-1912, Pennsylvania State University	
University of Utah	N.Y.	Sullivan, Samuel C.	N.Y.
University of Utah		U.S. 1911-1912, Middlebury College	
University of Utah		Sullivan, Samuel C.	Pa
University of Utah		U.S. 1911-1912, Drexel Institute of	
University of Utah		Philadelphia	
University of Utah	D.C.	Sullivan, Samuel C.	Conn
University of Utah		U.S. 1911-1912, Union Theological College	
University of Utah	D.C.	Sullivan, Samuel C.	Ohio
University of Utah		U.S. 1911-1912, Ohio State University	
University of Utah		Sullivan, Samuel C.	Va
University of Utah		U.S. 1911-1912, Kansas State University of	
University of Utah		Agriculture and Applied Science	
University of Utah		Sullivan, Samuel C.	D.C.
University of Utah		U.S. 1911-1912, Hampton-Sullivan College	
University of Utah	S.D.	Sullivan, Samuel C.	Md
University of Utah		U.S. 1911-1912, Duke University	

Wexler, Robert E. A.B. 1954, State University of South Dakota	Mo.	Wells, William S. B.S. in E.E. 1966, Lehigh University	Mo.
Whitman, James G. A.B. 1961, The George Washington University	D.C.	Wells, Alfred I. B.S. 1966, L.L.B. 1969, University of Wisconsin	1.
Whitman, Stephen R. A.B. 1961, San Francisco State College	Calif.	Wells, Gerald R. B.S. 1961, Iowa State University	No.
Whitman, George H. A.B. 1945, University of Maryland	Md.	Wells, Roy Allen B.S. in Ed. 1961, M.Ed. 1966, University of Wisconsin	Ar.
White, Clifford S. B.S. 1966, Maryland College of William & Mary	Va.	Wells, Thomas Francis B.S. 1961, East Tennessee State College	Mo.
White, Leonard A. B.M.E. 1955, The George Washington University	Mo.	Wells, George M. A.B. 1946, The George Washington University	
Whitman, James S. A.B. 1961, The George Washington University	N.Y.		X
Whitman, George L. A.B. 1961, Dickinson College	N.J.	Wells, Fred B.S. in E.E. 1961, Northwestern University	Mo.
Whitman, David O. A.B. 1961, Dickinson College	Md.		Y
Whitman, David L. B.A. 1961, American University	N.Y.	Yank, Frederick G. B.S. 1961, State University of South Dakota	D.C.
Whitman, David L. B.A. 1961, Kenyon College	N.Y.	Yank, William F. B.S. 1961, Dickinson College	1.
Whitman, John A. A.B. 1961, Oklahoma State University of Agriculture and Applied Science	Okl.	Yank, Alfred G. B.S. 1961, Tennessee State University	Ar.
Whitman, James A. B.S. 1961, University of Nebraska	Neb.	Yank, Dennis A. B.S. in B.A. 1961, University of Wisconsin	Ar.
Whitman, James M. B.S. 1961, Xavier University College	Ind.	Yank, George J. A.B. 1961, Benedictine College	1.
Whitman, Jay E. A.B. 1961, Fairleigh University	D.C.	Yank, Nancy A. A.B. 1961, Guilford College	Ar.
Whitman, Richard N. B.S. 1961, University of Idaho	Idaho	Yank, William R. A.B. 1961, Berea College	N.
Whitman, John A. A.B. 1961, Dickinson College	Pa.	Yank, Fred V. A.B. 1961, University of Michigan	
White, David J. B.S. 1961, University of Tennessee	Tenn.		Z
White, David J. B.S. 1961, University of Pennsylvania	Pa.	Zimmerman, Philip E. A.B. 1961, Case Western University	D.C.
White, David J. A.B. 1961, University of Maryland	D.C.	Zimmerman, John M. A.B. 1961, York University	N.Y.
White, David A. A.B. 1961, University of Kentucky	Ky.	Zimmerman, David W. A.B. 1961, Northwestern University	D.C.
White, Charles E. Jr. A.B. 1961, Ohio Western University	Mo.		
White, Robert A.B. 1961, University of Maryland	Md.		
White, David F. B.S. 1961, Virginia University	Va.		
White, John R. A.B. 1961, Saint Elizabeth College	Pa.		
White, Joseph J. B.S. 1961, Rutgers University	N.J.		
White, Joseph A. A.B. 1961, Stanford University	Calif.		

SUMMARIES OF REGISTRATION SPRING SEMESTER 1963-64

GEOGRAPHICAL DISTRIBUTION OF STUDENTS

GEOGRAPHICAL DISTRIBUTION OF STUDENTS		
1	New Mexico	6
2	New York	89
3	North Carolina	8
4	North Dakota	2
17	Ohio	29
4	Oklahoma	10
15	Oregon	2
8	Pennsylvania	65
181	Rhode Island	4
17	South Carolina	4
5	South Dakota	3
6	Tennessee	8
3	Texas	16
19	Utah	2
9	Vermont	2
7	Virginia	17
6	Washington	6
6	West Virginia	12
1	Wisconsin	6
4	Wyoming	1
14	England	1
11	France	1
11	India	1
2	Indonesia	5
2	Iran	1
6	Italy	1
2	Japan	1
9	Libya	1
4	Thailand	1
2	U.S.S.R.	1

GRADUATES OF COLLEGES REGISTERED IN THE LAW SCHOOL OR
THE GRADUATE SCHOOL OF PUBLIC LAW

[illegible]

Carleton College	1	Hampton University of
Carnegie Institute of Technology	2	Howard University
Carnegie-Newman College	1	Illinois College
Case Institute of Technology	2	Illinois University of
Catholic University of America	4	Illinois Institute of Technology
Coe College of Kentucky	1	Illinois University of
Charles University	1	Illinois Wesleyan University
Chatham College	1	Indiana University
Chicago University of	6	Indiana University of
Cincinnati University of	2	Iowa State College of
Clark University	1	Iowa State University of
Clarkson College of Technology	4	Iowa State University of Science
Clemson Agricultural College	1	Technology
Cleveland-Marshall Law School	1	Iowa City State College
Colgate University	1	Johns Hopkins University
College University of	1	Kansas State College
Colorado School of Mines	1	Kansas State Teachers College
Collegiate State University	1	Kansas State University of Agriculture
Columbia University of	6	and Applied Science
Columbia University	12	Kansas University of
Cornell University	6	Kean University
Cornell University	2	Kentucky University of
D.A.V. College, India	1	Kentucky College
Dartmouth College	1	Kentucky Tech Institute
Dartmouth University of	1	Kentucky College
Delaware University of	4	LaSalle College
Denison University of	1	Lawrence College
DePue University	1	Lawrence College
Detroit University of	2	Lawrence College
Dickinson College	1	Lawrence College
District of Columbia Teachers College	1	Lawrence College
Drexel College	1	Lawrence College
Drexel Institute of Technology	6	Lawrence College
Duke University	11	Lawrence College
Duquesne University	1	Lawrence College
Earlham College	4	Lawrence College
East Tennessee State College	3	Lawrence College
Emory University	1	Lawrence College
Emory University	1	Lawrence College
Fairfield University	2	Lawrence College
Florida State University	2	Lawrence College
Florida University of	9	Lawrence College
Florida University	5	Lawrence College
Franklin and Marshall College	1	Lawrence College
Furman University	1	Lawrence College
George Washington University, The	109	Lawrence College
Georgetown University	18	Lawrence College
Georgia Institute of Technology	2	Lawrence College
Georgia College	1	Lawrence College
Georgia University	1	Lawrence College
Graceland College	1	Lawrence College
Grinnell College	1	Lawrence College
Hampden-Sydney College	1	Lawrence College
Harvard University	14	Lawrence College
Harvard College	1	Lawrence College
Hawaii University of	1	Lawrence College
Hillside College	1	Lawrence College
Hobart College	1	Lawrence College
Holy Cross College of the	1	Lawrence College
Hood College	1	Lawrence College

[illegible]

Vermont University of	4	Wellesley College	1
Vermont University	4	West Virginia University	1
Virginia Medical College of	1	Wesleyan University	1
Virginia Polytechnic Institute	1	Whitman College	1
Virginia University of	19	Wichita University	1
Walton College	1	Widener University	1
Washington University	1	Wittenberg College	1
Washington and Jefferson College	2	Witham and Mary College	1
Washington and Lee University	9	Worcester College	1
Washington State University	1	Wright State College	1
Washington University	6	Wright University	1
Washington University of	1	Wright University of	1
Wayne State University	1	Yale University	1
Waynesburg College	1	Yeshiva University	1
Wells Institute of Naval Architecture	1		

SUMMARY OF REGISTRATION—SPRING SEMESTER 1964

	Men	Women	Total
First Year	101	26	127
Second Year	101	26	127
Third Year	44	1	45
Candidates for Degree of Master of Law	6	—	6
Candidates for Degree of Master of Comparative Law	—	—	—
Candidates for Degree of Master of Comparative Law (A.A.)	1	—	1
Ph.D. Candidates	1	1	2
Candidates for Degree of Doctor of Theological Studies	4	—	4
Undergraduates	936	26	962
TOTAL			

S

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U

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History, 7-8

Location, 8

V

Van Vleet Case Club, 20

W

Withdrawal and refunds, 30-31

THE GEORGE WASHINGTON UNIVERSITY

Academic programs leading to degrees are offered in the following colleges and schools:

- Columbian College of Arts and Sciences: Associate in Arts (A.A.), Associate in Science (A.S.), Bachelor of Arts (A.B.), Bachelor of Science (B.S.), Bachelor of Science in Medical Technology (B.S. in Med. Tech.), Master of Arts (A.M.), Master of Fine Arts (M.F.A.), and Master of Science (M.S.)
- Graduate Council: Doctor of Philosophy (Ph.D.)
- School of Medicine: Doctor of Medicine (M.D.)
- National Law Center:
 - Law School: Bachelor of Laws (LL.B.)
 - Graduate School of Public Law: Master of Laws (LL.M.), Master of Comparative Law (M.Comp.L.), and Doctor of Juridical Science (S.J.D.)
- School of Engineering and Applied Science: Engineering Technologist Certificate (E.T.C.), Bachelor of Science (B.S.), Master of Science (M.S.), Master of Engineering Administration (M.E.A.), and Doctor of Science (D.Sc.)
- School of Education: Bachelor of Arts in Education (A.B. in Ed.), Bachelor of Science in Physical Education (B.S. in P.E.), Master of Arts in Education (A.M. in Ed.), Education Specialist (Ed.S.), Advanced Professional Certificate (A.P.C.), and Doctor of Education (Ed.D.)
- School of Government, Business, and International Affairs: Bachelor of Arts in Government (A.B. in Govt.), Bachelor of Business Administration (B.B.A.), Master of Arts in Government (A.M. in Govt.), Master of Business Administration (M.B.A.), Master of Public Administration (M.P.A.), Doctor of Business Administration (D.B.A.), and Doctor of Public Administration (D.P.A.)
- College of General Studies: Associate in Arts (A.A.), Associate in Science (A.S.), Bachelor of Secretarial Administration (A.Sec.Adm.), Bachelor of Arts (A.B.), Bachelor of Business Administration (B.B.A.), Bachelor of Science in Cartography (B.S. in Cart.), Master of Arts (A.M.), Master of Arts in International Affairs (A.M. in I.A.), Master of Science in Business Administration (M.S. in B.A.), Master of Science in International Affairs (M.S. in I.A.), and Master of Science in Public Administration (M.S. in P.A.)

ANNUAL ISSUES OF THE UNIVERSITY BULLETIN

- Requests for the following publications should be addressed as indicated.
- College of General Studies.....Dean of the College of General Studies
 - Columbian College of Arts and Sciences.....Director of Admissions
 - Division of University Students.....Director of Admissions
 - Fellowships, Scholarships, Prizes, Financial Aid.....Chairman, Committee on Scholarships
 - General Catalogue of the University.....Director of Admissions
 - Graduate Council.....Dean of the Graduate Council
 - Law School, and Graduate School of Public Law.....Director of Admissions
 - School of Education.....Director of Admissions
 - School of Engineering and Applied Science.....Dean of the School
 - School of Government, Business, and International Affairs.....Director of Admissions
 - School of Medicine.....Admissions Office, School of Medicine
 - Summer Sessions.....Dean of the Summer Sessions
 - Schedule of Classes: Fall and Spring Semesters.....Registrar
 - Schedule of Classes: Summer Sessions.....Dean of the Summer Sessions

Joseph Barlow Martin, A.B., Editor of Academic Publications

THE GEORGE WASHINGTON UNIVERSITY, 1821

COLUMBIAN COLLEGE OF ARTS AND SCIENCES, 1831
THE GRADUATE COUNCIL, 1891

THE SCHOOL OF MEDICINE, 1825

THE NATIONAL LAW CENTER, 1951
THE LAW SCHOOL, 1888
THE GRADUATE SCHOOL OF PUBLIC LAW, 1897

THE SCHOOL OF ENGINEERING AND APPLIED SCIENCE, 1944
THE SCHOOL OF EDUCATION, 1907
THE SCHOOL OF GOVERNMENT, BUSINESS, AND
INTERNATIONAL AFFAIRS, 1932

THE COLLEGE OF GENERAL STUDIES, 1960
THE DIVISION OF UNIVERSITY STUDENTS, 1936
THE DIVISION OF AIR SCIENCE, 1945
THE SUMMER SESSIONS, 1918
THE UNIVERSITY HOSPITAL, 1898

The
George
Washington
University

Bulletin



THE GRADUATE COUNCIL
1964-65

CORRESPONDENCE DIRECTORY

Detailed information may be obtained by addressing inquiries as indicated below. For any information not included here, please write to the Director of Admissions, The George Washington University, Washington, D. C. 20006.

Information concerning courses of instruction and the programs of the several colleges and schools will be found in separate issues of the University Bulletin, which are listed on the inside back cover.

Admission Director of Admissions, Building C
1330 H Street NW.
School of Medicine
Air Science (ROTC) Director of Air Science, Chapin Hall
Alumni Association Alumni Office, Bacon Hall
Medical Alumni Association 1335 H Street NW.
Foreign Students Adviser to Foreign Students, Building T
Graduate Study

In Arts and Sciences

Master's degrees

Dean of Columbian College of Arts and Sciences

Doctor of Philosophy

Dean of The Graduate Council

In Education

Dean of The School of Education

In Engineering or Applied Science

Dean of The School of Engineering and Applied Science

In Law

Dean of The Graduate School of Public Law

In Accounting, Business Administration, Business and Economic Statistics,
Economic Policy, Health Care Administration, International Affairs, Per-
sonnel Administration, Public Administration, Public Affairs Dean of
The School of Government, Business, and International Affairs

Housing

Men

Dean of Men

Women

Dean of Women

Scholarships

Chairman, Committee on Scholarships, Building T

Student Employment

Student Placement Office, 2114 G Street NW.

Summer Sessions

Dean of the Summer Sessions, Building T

Transcripts of Records

Registrar, Building C

Veterans Education

Director of Veterans Education

PUBLISHED BY THE UNIVERSITY

AT WASHINGTON, D. C.

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1964-65

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WASHINGTON, D. C. 20006

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1964							1965													
July							January							July						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
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27	28	29	30	31			27	28	29	30				26	27	28	29	30	31	

Calendar 1964-65

FALL SEMESTER:

Registration	Sept 17-19*	Thurs-Sat
Application for Feb graduation due in Registrar's Office		
Parents Day (Monday)	Nov 11	Wed
Observing recess	Nov 20-28	Thurs-Sat
Dissertations of Feb candidates due in Dean's Office		
Christmas recess	Dec 1	Tues
Last day of fall-semester classes	Dec 24-Jan 2	Wed-Sat
Examination period	Jan 13	Wed
Inauguration (holiday)	Jan 15-23	Fri-Sat
	Jan 20	Wed

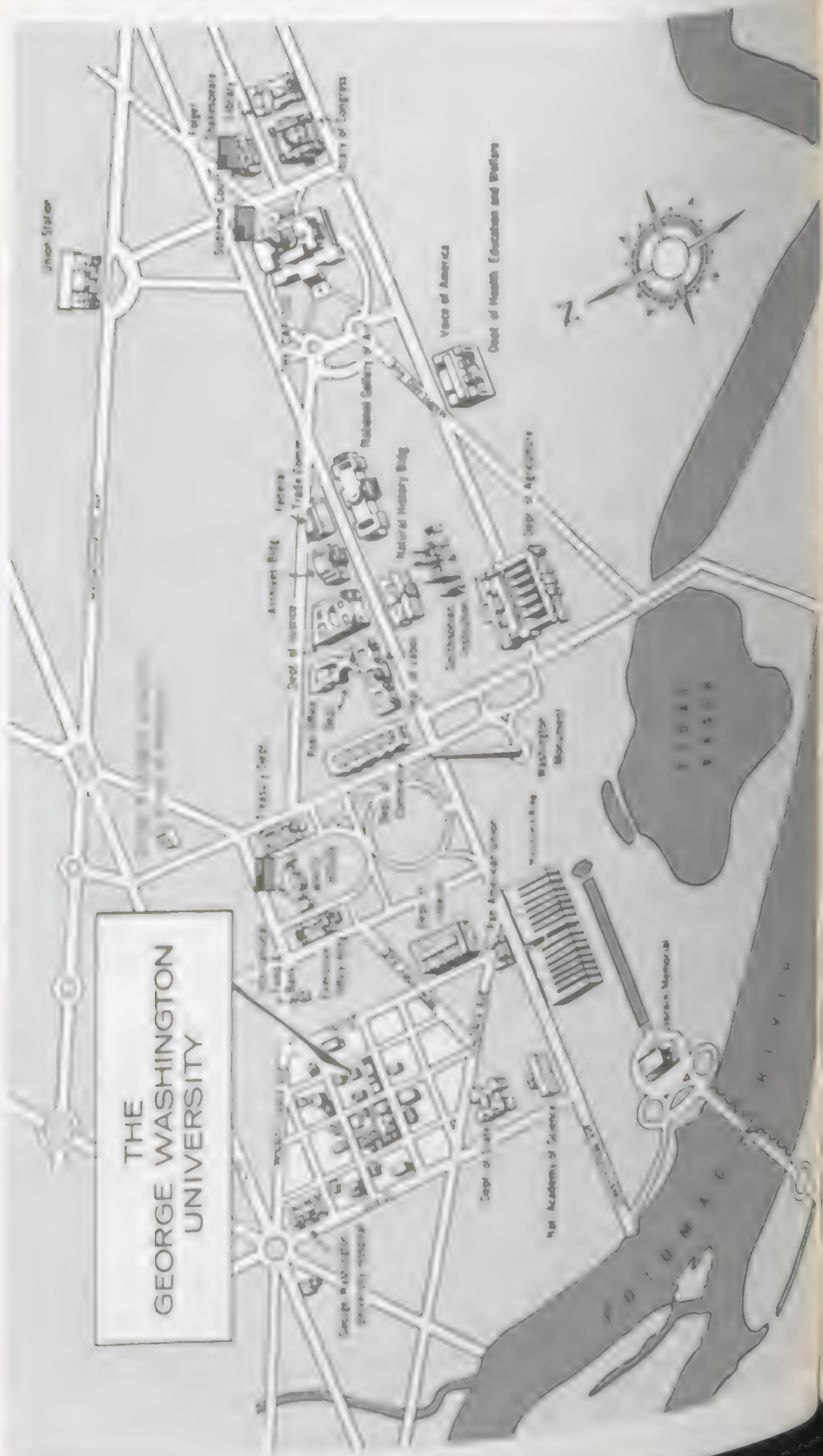
SPRING SEMESTER:

Registration		
Application for June graduation due in Registrar's Office	Jan 28-30*	Thurs-Sat
Winter Convocation (holiday)		
Spring recess	Feb 22	Mon
Dissertations of June candidates due in Dean's Office	March 22-27	Mon-Sat
Last day of spring-semester classes	April 1	Thurs
Examination period	May 19	Wed
Memorial Day (holiday)	May 24-29	Mon-Sat
Baccalaureate Service	May 31	Mon
Commencement Service	June 6	Sun
	June 6	Sun

REGISTRATION FOR THE FALL SEMESTER

1964-65	Sept 16-18	Thurs-Sat
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THE
GEORGE WASHINGTON
UNIVERSITY



The Graduate Council

INTRODUCTORY

The Graduate Council offers a program of advanced study and research leading only to the degree of Doctor of Philosophy. It was established in 1930 to replace the Graduate School which had formerly administered work for the Master's as well as the Doctor's degrees. The Graduate Council provides a doctoral discipline which moves freely across administrative lines dividing departments of instruction or fields of study. It gives personal supervision to a limited number of students, each of whom has his own consultative committee, examinations, and research direction.

ADMISSION PROCEDURE

For admission to doctoral work the student must possess adequate preparation for advanced study, together with acceptable personal qualities and a capacity for creative scholarship. Adequate preparation presupposes a satisfactory Bachelor's degree in the same general field as that proposed for doctoral study. Students beginning the first year of graduate study who plan to work towards the degree of Doctor of Philosophy may be given provisional status in the Graduate Council. However, if these students wish, and if the Dean of the Graduate Council so advises, they may enter for the Master's degree in the liberal arts college (Columbia College of Arts and Sciences) or in the School of Government, Business, and International Affairs during the first year and apply for transfer to full status in the Council upon completion of 24 semester hours of approved graduate work.

Application forms may be obtained from the Office of the Dean of the Graduate Council. The form must be filled out completely and returned with the application fee of \$5, together with a recent photograph, signed by the applicant. At the time of filing the application, the student should request that transcripts of all previous college training be sent to the Office of the Dean, together with letters of recommendation. Each application, with transcripts and letters, is examined by a committee. If the applicant is accepted, constitutes his Consultative Committee. The Committee supervises all aspects of the student's program and work leading to the General Examination.

REGISTRATION PROCEDURE

An applicant, upon receiving a letter of admission from the Graduate Council, is required to register at the beginning of the next semester. Doctoral students come to the Graduate Council Office to begin their registration process each semester.

THE PLAN OF WORK

The discipline for the degree is divided into three stages. (1) The first year of graduate study constitutes the initial stage, either in the Graduate Council on provisional status, or in Columbian College of Arts and Sciences or the School of Government, Business, and International Affairs enrolled as a Master's candidate intending to gain full status in the Council.* (2) Full status in the Council follows completion of the first year of graduate study and candidates in the General Examination. (3) The final stage is given to research and investigation of a particular project in a special field, the presentation of the findings in a written dissertation, and the Final Examination.

LANGUAGE EXAMINATIONS

French and German are the normally required languages; reading proficiency must be demonstrated by examination. Individual examinations may be arranged through the Office of the Dean whenever a student feels prepared. The satisfactory completion of French 49 and/or German 49 also meets the language requirement. The Consultative Committee may allow either French or German to be replaced by another language important to the student's research interest. Language examinations may be taken soon after entrance, but the first one must be passed no later than the beginning of the second semester following admission. The second examination must be passed well before completion of work for the General Examination.

THE FIRST YEAR OF STUDY

A student who enters the Graduate Council on provisional status to undertake the first year of graduate study has his program planned by a Consultative Committee. If the first year of work is taken in Columbian College of Arts and Sciences or the School of Government, Business, and International Affairs preparatory to gaining full status, Graduate Council advisers aid in planning the Master's program to fit the work into the doctoral program of the student. Upon satisfactory completion of the first year, the student is eligible to apply for full status. Students who have completed a year of satisfactory graduate work at other universities are also eligible to apply directly for full status in the Graduate Council.

STUDY FOR THE GENERAL EXAMINATION

At the beginning of the student's full status, the Consultative Committee is assigned to direct his work in an integrated group of fields of learning, usually five or six in number, deemed necessary to insure his breadth of knowledge, as well as to support the dissertation project in his central field. Members of the Consultative Committee advise the student concerning the scope and content of these supporting fields and assist him in preparation for his examination in them.

This advanced study in full status does not entail the taking of a second full year of graduate courses and seminars. Additional course work may not be necessary in some cases; in any event, the Consultative Committee determines whether such ad-

* Students on a part-time basis will normally complete a year of graduate study in two years.

ditional course work is needed, and if so, how much. In this stage of the work the student emphasizes in preparation is on conferences with committee members and independent study. Performance in the General Examination is the test of the student's ability to enter upon the final stage of his doctoral discipline.

The examination is a series of written tests usually extending over a period of two days. The major portion of a day is given to each part of the examination covering one of the fields of study on the student's program. If the results of the examination are satisfactory the student is admitted as a doctoral candidate, to pursue his special study and research under the supervision of a member of the Council.

RESEARCH, THE DISSERTATION, AND THE FINAL EXAMINATION

After the student has been admitted as a doctoral candidate and his research program has been arranged, he is responsible to the member of the Council who directs a research project. The Consultative Committee, in keeping with tradition, goes on at once with the successful completion of the General Examination. The member, however, can make recommendations either to the student or the Research Director, for the period following the General Examination—but cannot interfere with advance requirements. In special instances an advisory committee may or may not correspond in personnel with the previous Consultative Committee. The student in the period after the General Examination. Generally, such a committee may be convened to consider major questions concerning the program of a student in the period after the General Examination. The Dean could be named by the Dean at the request of the Research Director. The committee, with the understanding that whenever a Director and Co-director arrange research, that member on the permanent staff of the University shall have final responsibility on matters of policy and program. The Director of Research and the advisory committee may require further course work, where circumstances warrant so to do.

The candidate may enjoy unrestricted use of all the academic facilities of the University. When necessary, the Graduate Council makes provision for sending the candidate to some other institution, library, or laboratory for special study in connection with his doctoral investigation.

The doctoral dissertation is required of all candidates as evidence of ability to perform original research and to interpret its results. The student's dissertation subject and plan must be approved by the Director and two members of the General Examination Committee, after the General Examination is passed and before his research is begun.

After the date specified in the University calendar the candidate must submit to the Dean three complete copies of the dissertation (including a summary and a copy of the abstract for inclusion in the announcement of the examination). The Dean will make a fourth copy of the summary and reproduction of the dissertation and its summary are available in the Office of the Dean. The successful candidate for the doctorate is required, before receiving his degree, to pay a fee to cover the expense of printing the summary of his dissertation.

tion. Accepted dissertations, with accompanying drawings, become the property of the University and are deposited in the University Library, where the duplicate copies are bound and made available for circulation. Permission to publish or adapt material in them must be secured from the Dean.

When the completed dissertation has been approved by the Director of Research and by two other members of the Council, and submitted to the Office of the Dean, the candidate is presented for his final examination. This examination is oral and open to the public. The committee of examiners includes not only members of the Council competent in the research field or in closely related subjects, but also at least two qualified experts from other research institutions brought to the University to participate in the examination. If the candidate satisfies the examining committee concerning the high quality and originality of his contribution to knowledge as well as his mastery of the scholarship and research techniques of his field, the Council recommends him for the degree of Doctor of Philosophy.

FIELDS OF RESEARCH

The following fields of research have been authorized by the Graduate Council as those in which doctoral investigations and dissertations may be undertaken. The supporting fields of study required of all candidates for the degree of Doctor of Philosophy are specified for each individual student by his Consultative Committee before admission to study under the Council.

This list of fields is subject to such changes as the educational resources of the University may direct. The prospective student may address preliminary inquiries concerning his research interests to the member of the Council who is in charge of the field, or to the Dean of the Graduate Council.

LITERATURES AND LANGUAGES

American

- (1) Fiction; (2) Literary Nationalism
Social Themes in Literature

Colburn
Walker

English

- (1) Sixteenth Century Drama; (2) Seventeenth Century Drama
Seventeenth Century Literature
(1) Eighteenth Century Literature; (2) History of English Drama
Twentieth Century Literature

Reynolds
Hunt
Linton

Germanic

- (1) German Classicism; (2) German Romanticism
(1) German Realism; (2) Twentieth Century German Literature
Linguistic Analysis
(1) Middle High German Language and Literature; (2) Early New High
German Language and Literature
Old High German Language and Literature
Old Norse Language and Literature

Thoenes
Osterle
Allee, King

Legner
King
Allee

Clubb

Romance

- French Literature since 1880
(1) Eighteenth Century French Literature; (2) Twentieth Century
French Literature

1. Middle French Literature; (2) Old French Literature; (3) Romance
 Philology
 1. Nineteenth Century French Literature; (2) Symbolism in Poetry of
 the Modern Period
 Nineteenth Century French Literature
 1. Eighteenth Century Spanish Literature; (2) Nineteenth Century
 Spanish Literature
 1. Linguistics; (2) Spanish-American Literature; (3) Spanish
 Literature
 Modern Spanish Literature
 1. Nineteenth Century Spanish Literature; (2) Twentieth Century
 Spanish Literature
 1. Spanish American Literature; (2) Modern Spanish Literature

Vigneras

Frey

Protzman

Mazzen

McSpadden

Alonso

Supervia

Robb

SOCIAL SCIENCES

Economics

- Economic Policy
 Economic Theory
 History of Economic Thought
 International Economics
 International Finance
 Macroeconomics
 National Income
 Public Finance
 Social Economics
 Transportation

Watson
 Stewart, Watson, Skinner
 A. Burns
 Schmidt
 Polak, Young, de Vries
 Skinner
 Kendrick, Colm
 Colm

Kennedy

Geography

- City Planning
 General Geography
 Regional Development
 Regional Planning
 Regional Science

Davis, LeBlanc, Westermann, Woodruff
 Campbell, Mosé
 Davis, Westermann
 Campbell, Woodruff
 Campbell, Westermann, Davis

History

- European Diplomatic Since 1815
 European Nationalism
 European Russia and Soviet
 History of Latin Legislation
 History of Religion in the United States
 Latin American
 The Middle East
 United States Diplomacy
 United States Political
 United States: (1) Social; (2) Economic

R. Davison
 Kaiser
 Thompson
 Rasmussen

Davis
 R. Davison
 Merriman
 Haskett
 Gray

International Relations

The program in International Relations includes work under the
 leadership of Economics, History, and Political Science

London

Political Science

- Comparative Government and Political Theory
 International Law (1) War and Neutrality; (2) Arbitration
 International Politics
 International Politics and Organization
 International Relations
 International Relations, especially American Foreign Policy

Kraus
 Brewer
 Nimer

Hilkman
 Haviland

- (1) The Political Process; (2) Political Controls Over Administrative Agencies
 United States; (1) The Legislative Process; (2) Governmental Organization and Administration

LeBlanc

West

Psychology

- Clinical
 Comparative
 Experimental
 Perceptual Psychology
 Psychological Measurements
 Social Psychology

Hunt, Mercer, Nolan, Phillips, Levy
 Hill, Walk, Fagan
 Schlessinger, Tuttle

MATHEMATICAL AND PHYSICAL SCIENCES**Chemistry**

- Analytical
 Chemistry of Natural Products
 Geochemistry
 Inorganic
 Organic
 Physical: Kinetics and Electrochemistry
 Physical Organic: Reaction Mechanisms
 Physical: Solubilities

Naeser, Perras, West
 R. E. West
 Van Ecken

Geology

- Geochemistry
 Geomorphology
 Stratigraphy

Christ, Naeser
 Fagan
 Telex

Mathematics

- Algebra: Finite Groups
 Algebra: Matrix Theory
 Analysis: Functional Analysis
 Analysis: Infinite Series
 Mathematical Logic

Johnson
 Wagoner
 Livingston
 Morris
 Naeser

Physics

- Atmospheric Physics
 Behavior of Electrons in Solids
 Biophysics; Theoretical: (1) Quantum Mechanics; (2) Molecular Physics;
 (3) Relativity
 Electron Optics
 Experimental Biophysics
 (1) Experimental Nuclear Physics; (2) Radioactivity
 Low Energy Nuclear Physics
 Theoretical
 Theoretical Aerodynamics

Clark
 Hobbs
 Jehle
 Marton
 Yocum
 Cove
 Bergman
 Finkbe

Statistics

- (1) Applied: Econometrics; (2) Theoretical: Probability and Sampling
 Multivariate Analysis
 (1) Psychometrics; (2) Managerial Statistics

Kullback
 Bright

MEDICAL SCIENCES**Anatomy**

- Embryology
 Gross Anatomy
 Histology

Allan
 Telford
 Telford, Johnson

Neurophysiology
Physical Anthropology

von Sallmann
T. Stewart

Biochemistry

Amino Acid Metabolism
Animal Nutrition
Enzyme and Metabolism
Enzymes in Development
Biochemistry of Cancer
Carbohydrate Metabolism
(1) Carbohydrate Metabolism, (2) Nutrition (emphasis on vitamins);
(3) Physiological Chemistry
(1) Chemistry and Metabolism of Carbohydrates; (2) Biochemistry of
Tissue Culture
Chemistry and Metabolism of Lipids
Chemistry and Metabolism of Proteins
Complex Lipids
Immune System Metabolism
Lipids
Metabolic Relationships of Insulin
Pituitary Biochemistry
Pituitary Metabolism
Tissue Respiration

La Du, Udenfriend
Briggs
J. Burns
Bradic
Greenfield
Stetten
Roe
Bailey
Vahouny
Carroll
Bendy
Mertz, Seegen, J. E.
Treadwell
Gunn
Leinhardt
Rabinovitz
Birk

Microbiology

Bacterial Physiology
Bacterial Physiology and Nutrition
Bacterial Physiology
Immunology
(1) Immunology, (2) Medical Physiology
(1) Immunology, (2) Immunology; Antigenic Analysis
Medical Microbiology
Microbiology (1) Parasitology
Virology

R. C. Wood
Altshuler
Hatch
Surgalla, Wright, Parfetti
Affrati
Giffin
Jacobs
O'Hara
Robbins, Brown, Weiss

Pathology

Comparative Pathology

Peery

Pharmacology

Chemotherapy
Drug Metabolism
Neuropharmacology
Pharmacokinetics

Gablin, Mandel, Hahn
Axelrod, Gabel, C. Davidson, Gillette, Maggi, Mandel
Udenfriend
E. Telford

Physiology

Cardiovascular Physiology
Cellular Physiology
Endocrinology
Environmental Physiology
Neurophysiology
Nutrition
Respiratory Physiology

Leone, Sarnoff
Dwyer, Hoffman
Hertz, Alpert
C. Telford, Lombeck
Rosen, C. Telford, Alving
Leone, Alving
C. Telford

Psychiatry

Problems of Treatment (M.D. degree required for admission)

Overholser

Biology

Cytology

BIOLOGICAL SCIENCES

Bowman, Scott

Botany

Cytogenetics
 (1) Mycology; (2) Plant Pathology
 (1) Mycology; (2) Plant Physiology; Microorganisms
 Photobiology
 Plant Ecology
 Plant Physiology; Vascular Plants
 Plant Taxonomy
 Plant Virology
 Taxonomy

R. Stewart
 S. ...
 Haas ...
 S. ...
 S. ...
 P. ...
 Kaper, S. ...
 S. ...

Zoology

Comparative Vertebrate Endocrinology
 Entomology; Insect Physiology
 Histophysiology
 Vertebrate Embryology and Morphogenesis
 Vertebrate Ichthyology

Leah
 M. ...
 D. ...
 H. ...
 S. ...

RESIDENCE AND CONTINUOUS REGISTRATION

The Graduate Council expects all students to work on their doctoral programs in residence, although there is no formal regulation concerning the minimum amount of time of resident study either in preparation for the General Examination or as a doctoral candidate engaged in doctoral research. The student who undertakes either part of the doctoral program on full or limited schedule must, in accordance with University regulations, maintain continuous registration under the Graduate Council even when the Council has granted a leave of absence for study or residence elsewhere. Failure to maintain registration in each semester of the academic year disrupts the residence status of the student. In such case, the student must reapply for admission to the Council, under whatever new conditions and regulations are set up by his Consultative Committee or the member of the Council who directs his research. The student who has completed his tuition requirements, but whose graduation is deferred for any reason, must maintain "in residence" status by paying the residence fee for the semester immediately preceding the graduation at which he expects to receive his degree.

POSTDOCTORAL STUDY

The Council expects its graduates to continue their interests in advanced study and research, and to contribute to its program. They may continue any studies in the University without payment of tuition, and enjoy all University library privileges. Such graduates are required to pay only the usual residence fee in order to establish their active membership in the University. The use of laboratory space and equipment is contingent upon availability, and the cost of all laboratory privileges must be made with the Dean of the Council well before the semester in which the graduate wishes to register. Postdoctoral work taken under this privilege may not be applied toward any degree offered by the University.

General Information

FELLS*

Registration fee, nonrefundable.....	\$15.00
Tuition fee.....	
Work leading to and including the General Examination.....	1,200.00
Work leading to and including the Final Examination.....	1,200.00
Residence fee, charged each student wishing to maintain "in residence" status during any semester of absence from the University or after completion of degree requirements.....	36.00
Fee for printing summary of Doctoral dissertation.....	85.00
Publication fee.....	25.00

The tuition fee is to be paid at the rate of \$200 a semester or in full at the beginning of the first year of the doctoral discipline. No residence fee will be charged if a third year is required for completion of degree requirements.

Registration in the University entitles each student to the following University privileges: (1) the services of the Placement Office; (2) the use of University libraries; (3) gymnasium privileges; (4) admission to all athletic contests, unless otherwise restricted; (5) subscription to the *University Herald*, the student newspaper; (6) admission to University debates; (7) medical attention and hospital services as provided under Health Services. These privileges terminate and a student is no longer in residence when he withdraws or is dismissed from the University.

PAYMENT OF FEES

All fees are payable at the Office of the Cashier, 725 Twenty-first Street NW. No student is permitted to complete registration or attend classes until all fees are paid. Fees are due and payable in advance at the time of each registration.

The student may sign a contract at the time of each registration for semester fees, except for fees payable in advance, permitting payments as follows:

First Semester—One-third at the time of registration; one-third on the first working day in November; one-third on the first working day in December.

Second Semester—One-third at the time of registration; one-third on the first working day in March; one-third on the first working day in April.

Installments for the above may be made with the Office of the Cashier at the time of registration. Installment due notices are mailed. However, notification of notice is required for failure to meet obligations when due.

A student who fails to meet payments when due, but pays his fees within the following sixty days of the date on which payment is due, is charged a \$2 service fee.

A student who fails to meet payments within three weeks after payment is due is automatically suspended and may not attend classes until he has been officially reinstated and paid all arrearages and a \$5 readmission fee.

A student suspended for failure to meet payments when due may not be reinstated until two weeks from the date of suspension. Applications for reinstatement are to be made to the Office of the Cashier.

*Fees are for one semester; year fees of \$400 and are subject to change without notice.

FELLOWSHIPS

University Teaching Fellowships.—Assigned for the academic year to the various departments of instruction. The applicant is expected to be a prospective candidate for a Doctoral degree in the general field of his future doctoral study. Each teaching fellow receives an annual stipend (on a nine-month basis) of up to \$2,000 plus tuition and laboratory fees for whatever schedule of study or research his fellowship duties permit him to carry. Tuition and laboratory fees may not exceed \$600. Stipends vary with the work load of the individual teaching fellow. Normally a university teaching fellow renders half-time service in classroom or laboratory assignments to the department of instruction directing his doctoral study. Application should be made to the chairman of the department of instruction concerned by March 1, for the following academic year.

National Aeronautics and Space Administration Predoctoral Fellowships.—Fellowships, including tuition and stipends of from \$2,400 to \$2,800 (on a 12-month basis), depending on the stage of the doctoral study, are available in the fields of the physical sciences, engineering, mathematics, statistics, economics, and business. Application should be made to the Graduate Council prior to March 15, for the following academic year.

National Science Foundation Cooperative Graduate Fellowships.—Fellowships of \$2,400 for twelve months or \$1,800 for nine months, with tuition waived, are available in the mathematical, physical, medical, biological, and engineering sciences and in certain other fields regarded as employing scientific methods. Application should be made to the Graduate Council not later than November 1 for the following academic year.

National Science Foundation Summer Fellowships for Graduate Teaching Assistants.—Summer fellowships are available at not less than \$50 or more than \$85 a week for a period of 8 to 12 weeks; tuition is waived. Application should be made to the Graduate Council not later than December 1.

United States Public Health Service Predoctoral Fellowships.—Fellowships, including tuition, fees, and stipends of from \$1,800 to \$2,200 a year (on a 12-month basis), depending on the stage of the doctoral study, are available in the medical sciences; in those areas of the biological, physical, and behavioral sciences related to health; and in the environmental and other health-oriented fields. Complete information and application forms are available at the Career Development Research Branch, Division of Research Grants, the National Institutes of Health, Public Health Service, Bethesda, Maryland 20014.

United States Public Health Service Training Grants.—Information concerning training grants in fields of the medical sciences is available at the Office of the Dean of the School of Medicine.

THE LIBRARY

The University Library collections contain approximately 384,000 volumes. A student registered in the University is entitled to the reference use of the University Library. The Student Identification Card, issued upon the payment of fees, must be presented as identification.

The loan period for most books available for home circulation is two weeks, with an additional two-week renewal. A fine of five cents will be charged for each day a book is overdue. Any book which does circulate is subject to recall by the Librarian at any time. Reserve books for collateral reading must be used in the reading room when the Library is open. With special permission they may be drawn for overnight use when the Library closes. A fine of twenty-five cents will be charged for the first hour or fraction of an hour and five cents for each hour or fraction thereafter that a reserve book is overdue. Grades of a student will be withheld until the library record is clear.

The Library is open Monday through Friday, 9:00 A.M. to 10:00 P.M.; Saturday, 10 A.M. to 5:00 P.M.; Sunday, 2:00 to 6:00 P.M.

RIGHT TO DISMISS STUDENTS

The right is reserved by the University to dismiss or exclude any student from the University, or from any class or classes, whenever, in the interest of the student or the University, the University Administration deems it advisable to do so.

RIGHT TO CHANGE RULES

The University and its various colleges, schools, and divisions reserve the right to make or change requirements, rules, and fees. Such regulations shall go into force whenever the proper authorities may determine.

PROPERTY RESPONSIBILITY

The University is not responsible for the loss of personal property in any University building. A "Lost and Found" Office is maintained in the Student Union.

HEALTH SERVICES

The Health Services Staff assists students with their medical needs by advice and treatment, by proper referral when necessary, and by cooperation with other physicians. For medical emergencies and health consultations there is, on the campus, the Student Health Clinic open from 9 A.M. to 5 P.M., Monday through Friday during the academic year and Summer Sessions, with physician and nurse in attendance. There is also a rest room for women, with a graduate nurse in charge. For night and weekend emergencies, students may go to the emergency room of the University Hospital for treatment. The base fee for this visit will be paid by the Health Services, but other charges will be the responsibility of the student. This arrangement is for students only.

Student privileges include: (1) physical examination of all students who are applying for admission to Physical Education; (2) those visits in any one office by a member of the Health Services Staff, office or residence (District of Columbia); (3) treatment, including board and nursing in the University Hospital for not more than one week during any two consecutive periods, the necessity to be determined by the Student Health Services*. All additional hospital charges for operating room, X-ray, etc., are extra.

anesthetics, laboratory, X-ray, medications, or any special services must be paid by the student. Expenses incurred for examinations and treatment by specialists, such as eye refraction and provision of glasses; orthopedic examinations and application of cast or other appliances; laboratory and X-ray work; and surgical operations must be paid by the student.

This medical benefit applies only to illness or disability incurred while enrolled in the University. It does not apply to illness or disability incurred between the last day of examinations for a semester or summer session and completion of registration for the next semester or summer session.

The student is allowed, if he so desires, to engage physicians and nurses of his own choice, but when he does so he will be responsible for the fees charged.

Rules: (1) The Director of Health Services is empowered to limit or deny the medical benefits where, in his discretion, a student has, by his misconduct or breach of the rules of the University, made himself ineligible; (2) the Director of Health Services has authority to determine the necessity and length of hospitalization; (3) a student not currently enrolled or one who has severed his connection with the University is ineligible for medical benefits; (4) a student intending to train for an athletic team is required to pass a thorough examination at the beginning of each semester; (5) hospitalization is not available to those students availing themselves of other hospitalization coverage for the same illness.

The University is not responsible for injuries received in intercollegiate or intramural games, or in any of the activities of the departments of physical education.

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History and Organization

The George Washington University had its beginning in 1821 as The Columbian College in the District of Columbia. The name of the institution was changed in 1863 to Columbian University and in 1904 to The George Washington University. The date of the University to George Washington whose name it bears is an interesting one.

George Washington, as President and as private citizen, had urgently insisted upon the establishment of a National University in the Federal City. There he hoped to be able to instruct in the arts and sciences, students from all parts of the country would acquire the habits of good citizenship, throwing off local prejudices and acquiring at first hand a knowledge of the practice, as well as the theory, of representative government. To further the materialization of his hopes, Washington left a bequest of fifty shares of The Potomac Company "towards the endowment of a university to be established within the limits of the District of Columbia, under the patronage of the General Government, if that government should incline to extend a fostering hand towards it." The Congress never extended "a fostering hand." The Potomac Company passed out of existence and Washington's bequest became worth-

less. Conscious of Washington's hopes, but motivated primarily by a great misapprehension and the need for a learned clergy, a group of dedicated ministers and laymen sponsored a movement for the establishment of a college in the District of Columbia. Inspired largely by the zeal and energy of the Reverend Luther Rice, they secured funds for the purchase of a site and petitioned Congress for a charter. After long delay and amendment, Congress granted a charter which was approved by President Monroe on February 9, 1821. To safeguard the College's nonsectarian character it provided "That persons of every religious denomination shall be capable of being elected Trustees; nor shall any person, either as President, Professor, Tutor or student be refused admittance into said college, or denied any of the privileges, honors, or advantages therefore, for or on account of his sentiments in matters of religion."

During the entire time when the institution was known as Columbian College, its buildings were centered on College Hill, a tract of forty-six and a half acres between the present Fourteenth and Fifteenth Streets extending north from Florida Avenue somewhat beyond Columbia Road. The Medical School was located on the east side of the hill. For the better part of the Columbian University period, the buildings of the University were situated along H Street between Thirteenth and Fifteenth Streets. The Medical School group still remains there.

In the last half century the University's present plant has been developed on a tract of the old First Ward formerly known as "Foggy Bottom," between the Twenty-fourth and Twenty-fifth Streets, south of Pennsylvania Avenue. Within a few blocks of the White House, the Department of the Interior, the State Department, and many other governmental offices and international agencies. The University is not without its landmarks of interest to the University. President John A. King signed the Charter deed at 2017 Eye Street. The first President of the University, the Reverend Charles B. Bowen, was for fifty years the pastor of the Church at Nineteenth and Eye Streets, and Washington selected Twenty-fifth

and E Streets as the site of the National University he had hoped to see established. The University as it is now organized consists of Columbian College of Arts and Sciences; the Graduate Council, which offers work leading to the degree of Doctor of Philosophy; the professional schools of Medicine, Law, Engineering and Applied Science; Education, and Government, Business, and International Affairs; the College of General Studies; the Division of University Students; the Division of Air Science; and the Summer Sessions.

The government and educational management of the University are vested in a self-perpetuating Board of Trustees, with the President of the University serving as an ex officio member of the Board.

ACADEMIC STATUS

The George Washington University is accredited by its regional accrediting agency, the Middle States Association of Colleges and Secondary Schools. This is important to students who wish to transfer credits from one institution to another. The University is on the approved list of the American Association of University Women and is a member of the College Entrance Examination Board. The Department of Chemistry is on the approved list of the American Chemical Society.

LOCATION

The University is in downtown Washington four blocks west of the White House and east of the Potomac River with its extensive parkway. Readily accessible are many of the departments of the Government, including the Department of State, the Department of the Treasury, the Department of Justice, the Department of the Army, the Department of the Navy, the Department of the Interior, the Department of Agriculture, the Department of Commerce, and the Department of Labor, as well as the National Archives, the Capitol, the Library of Congress, the National Academy of Sciences, the Pan American Union, the National Gallery of Art, and the Corcoran Gallery of Art.

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*The President of the University, the Dean of Faculty, the Vice President for Plans and Resources, the Vice President for Finance, and the Vice President for Student Affairs are ex officio members of the Council.
 The Council of Members of the Council and Government is organized in accordance with the provisions of the Charter of the University of Southern California, as amended, for the academic year 1963-64.
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* On sabbatical leave spring semester 1963-64.
 † On leave of absence 1963-64.

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 trition
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 Ascorbic Acid Metabolism
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 tional Institute of Arthritis and Metabolic Diseases; Chemistry and Metabolism
 of Proteins
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 ment of Agriculture; Plant Physiology; Vascular Plants
 CHARLES LOUIS CHAST, Ph.D., Physicist, Solid State Group, Geochemistry and Pet-
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 JOHN ELMER CLARK, Ph.D., Chief, Geophysics Program, National Aeronautics Space
 Agency; Atmospheric Physics
 GEORGE COLE, Dr. rer. pol., Chief Economist, National Planning Association; Pub-
 lic Finance; National Income

* On leave of absence 1963-64.

* On leave of absence spring semester 1963-64.

- MARGARET CARRTSEN DE VRIES, Ph.D., *Economist; International Finance*
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- MERLE IRVING PROTZMAN, Ph.D., *Professor Emeritus of Romance Languages; Seventeenth Century French Literature*
- MARCO RABINOVITZ, Ph.D., *Research Chemist, National Cancer Institute; Protein Metabolism*
- WAYNE DAVID RASMUSSEN, Ph.D., *Chief, Agricultural History Branch, Economic and Statistical Division, United States Department of Agriculture; History of Land Legislation*
- FRANK MARSHALL RENKIN, Ph.D., *Professor of Pharmacology, Duke University; Membrane Physiology*
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- LEONARD SCHNEIDER, Ph.D., *Research Plant Pathologist, United States Department of Agriculture; Plant Virology*
- LEONARD PETER SCHULTZ, Ph.D., *Curator of Fishes, United States National Museum; Vertebrate Zoology; Ichthyology*
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- LYMAN BRADFORD SMITH, Ph.D., *Curator, Division of Phanerogams, Department of Botany, Smithsonian Institution; Taxonomy*
- DEWEY STEFFEN, JR., M.D., Ph.D., *Director, Intramural Research, National Institute of Arthritis and Metabolic Diseases; Carbohydrate Metabolism*
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- MICHAEL JOSEPH SURGALLA, Ph.D., *Chief, Bacteriology I Branch, Medical Bacteriology Division, Fort Detrick; Immunology*
- SIMON UDENFRIEND, Ph.D., *Chief, Laboratory of Clinical Biochemistry, National Heart Institute; Amino Acid Metabolism; Neurohormones*
- LEONIE VON SALTSMANN, M.D., *Chief, Ophthalmology Branch, National Institute of Neurological Diseases and Blindness; Neuroophthalmology*
- FRANK MARK WEIDA, Ph.D., *Professor Emeritus of Statistics; Theoretical Statistics; Probability and Sampling; Applied Statistics; Econometrics*
- ERNEST WEISS, Ph.D., *Deputy Director, Department of Microbiology, Naval Medical Research Institute, National Naval Medical Center, Virginia*
- JOHN REED WEST, Ph.D., *Professor Emeritus of Political Science; United States Legislative Process; Governmental Organization and Administration*
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THE GEORGE WASHINGTON UNIVERSITY

Academic programs leading to degrees are offered in the following colleges and schools:

Columbian College of Arts and Sciences: Associate in Arts (A.A.), Associate in Science (A.S.), Bachelor of Arts (A.B.), Bachelor of Science (B.S.), Bachelor of Science in Medical Technology (B.S. in Med. Tech.), Master of Arts (A.M.), Master of Fine Arts (M.F.A.), and Master of Science (M.S.)

Graduate Council: Doctor of Philosophy (Ph.D.)

School of Medicine: Doctor of Medicine (M.D.)

National Law Center:

Law School: Bachelor of Laws (LL.B.)

Graduate School of Public Law: Master of Laws (LL.M.), Master of Comparative Law (M.Comp.L.), and Doctor of Juridical Science (S.J.D.)

School of Engineering and Applied Science: Engineering Technologist Certificate (E.T.C.), Bachelor of Science (B.S.), Master of Science (M.S.), Master of Engineering Administration (M.E.A.), and Doctor of Science (D.Sc.)

School of Education: Bachelor of Arts in Education (A.B. in Ed.), Bachelor of Science in Physical Education (B.S. in P.E.), Master of Arts in Education (A.M. in Ed.), Education Specialist (Ed.S.), Advanced Professional Certificate (A.P.C.), and Doctor of Education (Ed.D.)

School of Government, Business, and International Affairs: Bachelor of Arts in Government (A.B. in Govt.), Bachelor of Business Administration (B.B.A.), Master of Arts in Government (A.M. in Govt.), Master of Business Administration (M.B.A.), Master of Public Administration (M.P.A.), Doctor of Business Administration (D.B.A.), and Doctor of Public Administration (D.P.A.)

College of General Studies: Associate in Arts (A.A.), Associate in Science (A.S.), Associate in Secretarial Administration (A.Sec.Adm.), Bachelor of Arts (A.B.), Bachelor of Science in Cartography (B.S. in Cart.), Master of Arts (A.M.), Master of Arts in International Affairs (A.M. in I.A.), Master of Science in Business Administration (M.S. in B.A.), and Master of Science in Public Administration (M.S. in P.A.)

ANNUAL ISSUES OF THE UNIVERSITY BULLETIN

Requests for the following publications should be addressed as indicated.

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Columbian College of Arts and Sciences	Director of Admissions
Division of University Students	Director of Admissions
Fellowships, Scholarships, Prizes, Financial Aid	Chairman, Committee on Scholarships
General Catalogue of the University	Director of Admissions
Graduate Council	Dean of the Graduate Council
Law School and Graduate School of Public Law	Director of Admissions
School of Education	Director of Admissions
School of Engineering and Applied Science	Dean of the School
School of Government, Business, and International Affairs	Director of Admissions
School of Medicine	Admissions Office, School of Medicine
Summer Sessions	Dean of the Summer Sessions
Schedule of Classes: Fall and Spring Semesters	Registrar
Schedule of Classes: Summer Sessions	Dean of the Summer Sessions

THE GEORGE WASHINGTON UNIVERSITY, 1821

COLUMBIAN COLLEGE OF ARTS AND SCIENCES, 1821

THE GRADUATE COUNCIL, 1893

THE SCHOOL OF MEDICINE, 1825

THE NATIONAL LAW CENTER, 1959

THE LAW SCHOOL, 1865

THE GRADUATE SCHOOL OF PUBLIC LAW, 1959

THE SCHOOL OF ENGINEERING AND APPLIED SCIENCE, 1884

THE SCHOOL OF EDUCATION, 1907

THE SCHOOL OF GOVERNMENT, BUSINESS, AND
INTERNATIONAL AFFAIRS, 1928

THE COLLEGE OF GENERAL STUDIES, 1950

THE DIVISION OF UNIVERSITY STUDENTS, 1930

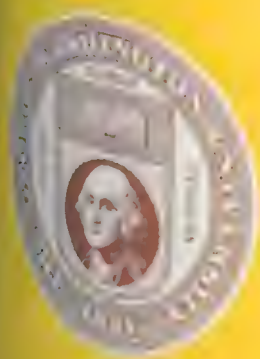
THE DIVISION OF AIR SCIENCE, 1961

THE SUMMER SESSIONS, 1916

THE UNIVERSITY HOSPITAL, 1898

The
George
Washington
University

Bulletin



COLUMBIAN COLLEGE OF
ARTS AND SCIENCES
Graduate and Undergraduate Programs
1964-65

CORRESPONDENCE DIRECTORY

Detailed information may be obtained by addressing inquiries as indicated. For any information not included here, please write to the Director of Admissions, The George Washington University, Washington, D. C. 20006.

Information concerning courses of instruction and the programs of the various colleges and schools will be found in separate issues of the University Bulletin, which are listed on the inside back cover.

Admission..... Director of Admissions, Building 1, 1335 H Street, N.W.

School of Medicine.....

Air Science (ROTC)..... Director of Air Science, Building 1, 1335 H Street, N.W.

Alumni Association..... Alumni Office, Building 1, 1335 H Street, N.W.

Medical Alumni Association.....

Foreign Students..... Adviser to Foreign Students, Building 1, 1335 H Street, N.W.

Graduate Study.....

In Arts and Sciences.....

Master's degree..... Dean of Columbian College of Arts and Sciences

Doctor of Philosophy..... Dean of The Graduate School

In Education..... Dean of The School of Education

In Engineering or Applied Science..... Dean of The School of Engineering and Applied Science

In Law..... Dean of The Graduate School of Public Law

In Accounting, Business Administration, Business and Economic Statistics..... Dean of The School of Government, Business, and International Affairs

Economic Policy, Health Care Administration, International Affairs, Personnel Administration, Public Administration, Public Affairs.....

The School of Government, Business, and International Affairs

Housing.....

Men..... Dean of Men

Women..... Dean of Women

Scholarships..... Chairman, Committee on Scholarships, Building T

Student Employment..... Student Placement Office, 2114 G Street, N.W.

Summer Sessions..... Dean of the Summer Sessions, Building T

Transcripts of Records..... Registrar, Building C

Veterans Education..... Director of Veterans Education

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AT WASHINGTON, D. C.

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Graduate and Undergraduate Programs
1964-65

VOLUME LXIII

JANUARY 1964
WASHINGTON, D. C. 20006

NUMBER 7

THE
GEORGE WASHINGTON
UNIVERSITY



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1964							1965													
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The Calendar 1964-65

FALL SEMESTER:

Advising: freshmen	Sept 9-16	Wed-Wed
Orientation Assembly: all new students	Sept 11	Fri
Curriculum assemblies:		
New full-time students	Sept 11	Fri
New part-time students	Sept 14	Mon
Placement tests	Sept 14-15	Mon-Tues
Advising: transfer students and upper classmen		
University Faculty Assembly Meeting	Sept 14-16	Mon-Wed
Registration	Sept 16	Wed
Application for Feb graduation due in Registrar's Office	Sept 17-19*	Thurs-Sat
Classes begin	Sept 21	Mon
Schedules of Master's theses of Feb candidates due in Dean's Office	Oct 2	Fri
Veterans Day (holiday)	Nov 11	Wed
Thanksgiving recess	Nov 26-28	Thurs-Sat
Graduate Record Examination	Dec 12	Sat
Christmas recess	Dec 23-Jan 2	Wed-Sat
Classes resume	Jan 4	Mon
Master's theses of Feb candidates due in Dean's Office	Jan 4	Mon
Last day of full-semester classes	Jan 13	Wed
Examination period	Jan 15-23	Fri-Sat

SPRING SEMESTER:

Advising: freshmen, sophomores, all new students	Jan 11-27	Mon-Wed
Immersionation (holiday)	Jan 20	Wed
Placement tests	Jan 25	Mon
Registration	Jan 28-30*	Thurs-Sat
Application for June graduation due in Registrar's Office		
Spring-semester classes begin	Feb 1	Mon
Schedules of Master's theses of June candidates due in Dean's Office	Feb 5	Fri
University Faculty Assembly Meeting	Feb 9	Tues
Winter Convocation (Monday)	Feb 22	Mon
Spring recess	March 22-27	Mon-Sat
Graduate Record Examination	April 10	Sat
Master's theses of June candidates due in Dean's Office	April 30	Fri
Last day of spring semester classes	May 19	Wed
Examination period	May 24-29	Mon-Sat

* Thursday and Friday, from 12:00 to 8:00 P.M.; Saturday from 10:00 A.M. to 1:00 P.M.

Memorial Day (holiday).....	May 31
Baccalaureate Service	June 6
Commencement	June 6

Mon
Sun
Sun

SUMMER SESSIONS†:

REGISTRATION FOR FALL SEMESTER

1965-66 Sept 16-18

Thurs-Sat



† Dates will be announced in the Calendar of the 1965 Summer Sessions Catalogue, published in December 1964.

Columbian College of Arts and Sciences

INTRODUCTORY

Since its founding in 1821, Columbian College of Arts and Sciences, the liberal arts college of The George Washington University, has continued to expand and develop with the city of Washington. Its central situation, close to the buildings of the Federal Government, the concert halls, art galleries, and the parkway along the Potomac River makes participation in the life of the Nation's Capital convenient for student students. The cosmopolitan nature of the student body reflects the atmosphere of a great world capital. Because the students come from the fifty states and twenty-two foreign countries, class discussions and casual student conversation are enriched by a challenging variety of viewpoints.

Columbian College offers undergraduate and graduate programs leading to Bachelor's and Master's degrees; prelegal and premedical programs; the first two years of professional programs in Education; and in Government, Business, and International Affairs; and two-year terminal curricula in Accounting and Physical Sciences.

Entering freshmen and transfer students of less than junior class standing may choose those in the fields of engineering and applied science, enter the lower division of Columbian College. This division is primarily concerned with providing (1) the personal and academic guidance needed by beginning college students in adjusting to college life and in selecting and preparing for a major field and (2) the broad cultural foundations in language and literature, science, and social studies on which specialized specialization in the upper division is built.

During the junior and senior years the student is in the upper division, where he is guided by his major-field adviser. A student who plans to continue toward a Master's degree should plan his Bachelor's program so that it will prepare him for the graduate work of his interest.

Programs leading to the Master's degrees are offered by the graduate division of Columbian College. Students planning to work toward the degree of Doctor of Philosophy may be given provisional status in the Graduate Council, which administers the doctoral programs, during the first year of graduate study, or they may enter as Master's candidates in Columbian College and apply for transfer to the Graduate Council upon completion of 24 semester hours of approved graduate work.

THE COLUMBIAN COLLEGE PROGRAM

The Columbian College program is a contemporary application of the historic liberal arts tradition. Its purpose is to enable the student to develop harmoniously both

his particular abilities and his general awareness as a human being. It demands of the student a thorough acquaintance with one major area of learning and at the same time an understanding of how that field of specialization fits into the larger context of the scientific, social, and moral problems which confront modern man. It stresses not merely expertness but that broadly enlightened expertness which encourages its graduates to grow through the years in ability and wisdom.



Undergraduate Programs

The Lower Division

A student in the lower division is given the opportunity of taking a wide range of liberal arts subjects—humanities, foreign languages, sciences, social studies—both as a means of laying the ground work for the more concentrated major-field study in the upper division and as a means of determining what academic area is best adapted to his interests and aptitudes. In order to insure that these general educational requirements are met, the student is not permitted to anticipate major-field special courses until all basic areas are covered.

ADVISORY SYSTEM

Each student in the lower division is provided with two kinds of counseling. Academic advising is performed by members of the Faculty selected for their knowledge of freshman-sophomore requirements and programs, and each student makes up his program in consultation with the adviser assigned to him before registration. Personal counseling is also available to all students, particularly those who find it difficult to adjust to college life. As in the case of academic advising, each student is assigned to a member of the Faculty to whom he may go for personal, nonacademic assistance. All students are encouraged to maintain close contact both with their academic and their nonacademic Faculty advisers.

An academic warning system permits early attention to students whose work falls below required standards. In such cases, students are required to consult regularly with their advisers. On request, copies of academic warnings or probation notices may be sent to parents or guardians, who are themselves welcome to meet with members of the advisory staff.

Preprofessional Students. Preprofessional students who intend to transfer after one year to the School of Education or to the School of Government, Business, and International Affairs are registered in the lower division to complete the minimum requirements specified by each professional school. Such students are assigned special advisers to assist them in planning their programs.

REQUIRED PLACEMENT EXAMINATIONS

English.—Special placement examinations, required of all entering freshmen, are conducted by the English Department. Indian students are registered in English 1, and are tested in the minimums of vocabulary, spelling, grammar, standard usage, and writing skills. Those who show marked superiority may, upon passing fur-

ther tests, be exempted from one or both halves of the English Composition course; those who are inadequately prepared are assigned to English 1X.

Foreign Languages.—A standardized placement examination is required of all entering students who wish to continue in college the language begun in high school (French, German, Russian, or Spanish). Upon completion of the examination, assignment is made to the appropriate course.

Mathematics.—Special placement examinations are required of all entering freshmen who expect to register for courses in mathematics. Students showing deficiencies may be assigned to remedial work.

FIRST- AND SECOND-GROUP COURSES

A freshman or sophomore may take second-group courses (courses numbered 101-200) only with the written permission of the Instructor and of the Dean*. A student is not permitted to postpone a required first-group course in order to take a second-group course for elective credit. The principle that first-group courses must be taken in the freshman and sophomore years, and advanced courses in the junior and senior years in Columbian College and the professional schools, is rigidly adhered to in approving student programs. Freshmen and sophomores on probation may take second-group courses only with the written permission of the Committee on Scholarship.

PROFESSIONAL COURSES

Except for students intending to apply for the combined degrees of Bachelor of Arts and Doctor of Medicine or the degree of Bachelor of Science in Medical Technology, not more than 12 hours of professional courses may be included in the 124 hours required for the Bachelor's degrees in Columbian College. Lower division students electing professional courses under this rule must obtain the approval of the Dean before registration.

PHYSICAL EDUCATION REQUIREMENT

Freshmen and sophomores (except those enrolled in the Physical Education curriculum) are required to take Physical Education 1-2 and 11-12 unless they are registered for less than 9 semester hours or unless regular employment during the day makes it necessary to take all classes during the evening hours. Air Force ROTC cadets and a limited number of freshman and sophomore women may substitute Air Science 1-2 and 11-12 for the physical education requirement.

Any other exemptions will be granted only upon written petition which has been recommended by the physical education department concerned and approved by the Dean. Students exempt from the physical education requirement must substitute four hours of elective.

A student entering the University with advanced standing is not exempt from the physical education requirement unless he has satisfactorily met the requirement elsewhere.

The required medical and physical examinations, as specified by the departments of physical education, will be arranged at the beginning of each semester.

* Students enrolled in the Medical Technology program, or in the two-year terminal curriculum in Accounting, may take those second-group courses which are specified as part of their freshman-sophomore curricula without obtaining the written permission of the instructor or the Dean.

FOREIGN LANGUAGE REQUIREMENT

In curricula requiring foreign languages a student must complete satisfactorily the equivalent of two years or college work in a single foreign language.

A student offering for admission four acceptable high school units of a single foreign language, or the equivalent, is not required to take any foreign language.

A student who offers less than four units and wishes to meet the requirement by testing in the same language must take the language placement test (see page 12).

In general, one year of high school language is considered equivalent to one semester of college language.

In some instances foreign languages are required or recommended as preparation for advanced work in Columbian College and the professional schools. The student should consult his adviser as to these requirements, so that appropriate foreign languages may be included, when necessary, in his lower division program.

ENGLISH REQUIREMENT

Entering students registered in the liberal arts and sciences curricula must follow a sequence of English I or IY, both halves of one of the introductory literature courses, and English 4. This does not apply to students transferring to those curricula or students registering in the preprofessional or terminal curricula.

EXAMINATIONS FOR WAIVING CURRICULUM REQUIREMENTS*

A required course may be waived and admission to an advanced course granted by the satisfactory passing of a waiver examination prescribed by the department concerned. Passing this examination does not entitle the student to any hours of credit toward the degree. Written request to take the examination should be made to the department and the required fee paid at the Office of the Cashier before taking the examination.



*This provision does not apply to the preprofessional student, all of whose required premedical work must be done in a recognized college of arts and sciences.

I. Lower Division Curricula

Each of the following curricula comprises the first two years of a standard four-year college course.

All curricula in this group lead to the degree of Associate in Arts. Students wishing to receive this degree must apply at the Registrar's Office at the time of registration for the fourth semester and must meet the residence requirement of 15 semester hours in Columbian College.

IN PREPARATION FOR THE UPPER DIVISION OF COLUMBIAN COLLEGE:

Arts and Letters

First two years of the Bachelor of Arts curriculum:

		Semester Hours
English Composition and Literature	English 1 or IX, 51-52, 71-72, 91-92, Classical Languages 71-72, French 51-52, German 51-52, Slavonic Languages 91-92, or Spanish 51-52; English 4	12
Foreign Language	See page 13 for foreign language requirement	4
Physical Education	See page 12 for statement of requirement	6
Science	Biology 1-2, Chemistry 3-4, 11-12, Geology 1-2, 1 and 12; or Physics 1-2 or former 11 and 12; or 71-72; Political Science 1 and 9, 1 and 10, or 9-10; or Anthropology 1 and Sociology 2	8
Social Studies	Economics 1-2; Geography 51, 52; History 39-40, 71-72; Political Science 1 and 9, 1 and 10, or 9-10; or Anthropology 1 and Sociology 2	8
Elective*		6
Total		64

Science

First two years of the Bachelor of Science and the Bachelor of Science in Medical Technology curricula. Medical Technology students must include Biology 1-2, Chemistry 11-12, and Microbiology 211 and 212; these courses satisfy the science requirements for the Medical Technology student.

		Semester Hours
English Composition and Literature	English 1 or IX, 51-52, 71-72, 91-92, Classical Languages 71-72, French 51-52, German 51-52, Slavonic Languages 91-92, or Spanish 51-52; English 4	12
	Philosophy 51	3

* It is suggested that electives include one of the following courses: Art 31-32, 71-72; Philosophy 51-52, 1-12, 9-12, 13-14.
 The student should obtain the advice of his major department as to proper prerequisite and collateral courses for the intended major.
 Credit is not given for courses elected in Secretarial Studies. Credit may be given for a limited number of courses elected in Physical Education, with the approval of the Dean.

		Summer Hours
Foreign Language	French, German, Russian, or nonscience elective.....	12
	<i>Note.</i> —A reading knowledge of French, German, or Russian is required. This may be satisfied by French 4, German 4, or Russian 4 or by special examination.	
Mathematics	Mathematics 3, 6, or electives.....	6
	<i>Note.</i> —The Mathematics 3 requirement may be satisfied by offering two years of high school algebra, acceptable for admission; the Mathematics 6 requirement may be satisfied by offering one-half year of high school trigonometry acceptable for admission.	
Physical Education	See page 12 for statement of requirement.....	4
Science	Biology 1-2.....	8
	Chemistry 11-12, Geology 1-2 or 1 and 12, Physics 1-2 or former 11 and 12 or 11 and 14.....	12 14
Social Studies	Political Science 1-2; Geography 51, 52; History 39-40, 71-72; Political Science 1 and 9, 1 and 10, or 9-10; or Anthropology 1 and Sociology 2.....	6
Electives*		2-4
	Total	64

Premedical

Premedical students may follow either the Arts and Letters or the Science curriculum in fulfilling the first 64 semester hours of the premedical requirement. The premedical program must be approved by the premedical adviser.

A minimum of 90 semester hours applicable toward a degree in an approved College of Arts and Sciences (including:

Science (including 4 hours of laboratory)	8
4 hours in other general biology or zoology	
Chemistry	
Organic (including 4 hours of laboratory)	3
(Qualitative analysis may be counted as part of this requirement)	
General (including laboratory)	6-8
The equivalent of a one-year college course	
English (Composition and Literature)	6
Foreign Language (including at least 2 hours of laboratory)	8

On the exception of these specific requirements applicants are urged to follow their personal interests in developing their premedical courses of study. A well-balanced program, rather than a specific field, is the criterion by which an applicant is judged. It is not advisable to take courses that appear to cover subject matter in the premedical program.

Well-qualified candidates are eligible for admission after completing the premedical semester-hour requirement; the majority of applicants are found to be well prepared for the study of medicine after four years of college work.

Medical Technology

The degree of Bachelor of Science in Medical Technology is offered by Columbia College in collaboration with the Department of Pathology and the University Hospital. Candidates should follow the Science curriculum in the lower division, including:

* See footnote on page 14.

ing specifically Chemistry 11-12 and Microbiology 211 and 212. See page 25 for description of the course and a statement of further requirements.

IN PREPARATION FOR THE SCHOOL OF EDUCATION:

Education

First two years of the Bachelor of Arts in Education curriculum of the School of Education:

		Semester Hours
English	English 1 or IX, 2	8
Foreign Language	English 3, 51-52, 71-72, or 91-92	12
	(French, German, Latin, Russian, or Spanish) See page 13 for foreign language requirement.	4
Physical Education	See page 12 for statement of requirement.	
Science	Three semesters (two in biological science and one in physical science or vice versa) to supplement senior high school courses in these fields and chosen from Biology 1-2; Chemistry 3-4, 11-12; Geology 1-2 or 1 and 12; Physics 1-2 or former 11 and 12. (A student offering for admission two or more acceptable senior high school units in the above areas of science may be exempted from one semester of this requirement.)	9-12
Mathematics	Two semesters to supplement senior high school courses chosen from Mathematics 3, 6, 9, 10.	6
Social Studies	History 71-72; Political Science 1 and 9, 1 and 10, or 9-10	6
	Economics 1-2; Geography 51-52; History 39-40, 71-72; Political Science 1 and 9, 1 and 10, 9-10; Religion 59-60; Anthropology 1 and Sociology 2. (A student offering for admission two or more acceptable senior high school units in social studies may be exempted from this requirement.)	6
Speech	Speech 1 (or 11, if the Department so advises)	3
Psychology	Psychology 1, 22	6
Electives may be selected in lieu of the various exemptions.		64-67
Total.....		64

Physical Education for Men

First two years of the Bachelor of Science in Physical Education curriculum of the School of Education:

English	English 1 or IX, 2	8
Science	Biology 1-2 (Freshman year)	8
	Chemistry 3-4 (Sophomore year)	6
Social Studies	History 71-72; Political Science 1 and 9, 1 and 10, or 9-10	6
	Anthropology 1 and Sociology 2	10
Major Prerequisites	Physical Education 41, 43-44, 47; Speech 1 or 11	16
	(Freshman year)	4
	Physical Education 45-46, 49, 50; Psychology 1, 22	4
	(Sophomore year)	64
Elective		
Total.....		64

Physical Education for Women

First two years of the Bachelor of Science in Physical Education curriculum of the School of Education:

	Semester Hours
English English 1 or 1X, 2	6
Science English 71-82, 71-72, or 91-92	6
..... Biology 1-2	8
Social Studies Chemistry 3-4	8
..... History 39-40, 71-72; Political Science 1 and 9, 1	6
Major Prerequisites and 10, or 9-10, or Anthropology 1 and Sociology 2	4-6
..... Physical Education 43-44	6
..... Physical Education 49, 50	6
Academic Electives Physical Education 51-52	4-6
..... Psychology 1, 2	6
.....	6-10
Total	64

IN PREPARATION FOR THE SCHOOL OF GOVERNMENT, BUSINESS, AND INTERNATIONAL AFFAIRS:

Government and Business

ACCOUNTING AND BUSINESS ADMINISTRATION

First two years of the Bachelor of Business Administration curricula in Accounting and in Business Administration of the School of Government, Business, and International Affairs:

	Semester Hours
Accounting Accounting 1-2	6
English English 1 or 1X, 2	6
Foreign Language English 51-52, 71-72, 91-92; French 3-4 or 21-22;	6
..... German 3-4 or 31-32; Russian 3-4 or 71-72; Span-	6
..... ish 3-4 or 51-52	6
Mathematics Mathematics 15, 16	6
Science Biology 1-2; Chemistry 3-4, 11-12; Geology 1-2 or	6-8
..... 1 and 12; or Physics 1-2 or former 11 and 12	6
Social Studies Economics 1-2	6
..... Political Science 9-10	6
Psychology Psychology 1	3
..... Anthropology 1, Sociology 2 or Psychology 2	3
Statistics Statistics 31	3
Senior Thesis Senior Thesis 12 for alignment of requirements	4
..... (Special is recommended for students interested in For-	2-9
..... eign Commerce include Geography 22)	64
Total	64

This requirement is waived for students who offer 4 years of acceptable high school work in a single foreign language.
Credit is not given for courses elected in Physical Education or Secretarial Studies.

PUBLIC AFFAIRS

First two years of the Bachelor of Arts in Government curriculum in Public Affairs of the School of Government, Business, and International Affairs:

English	English 1 or IX, 2	6
Foreign Language	See page 13 for foreign language requirement	12
Mathematics or Science	Biology 1-2; Chemistry 3-4; Geology 1-2; Mathematics 3, 6; Physics 1-2 or former 11, 12; or Statistics 51, 52	6-8
Physical Education	See page 12 for statement of requirement	4
Social Studies	Economics 1-2; History 39-40, 71-72; Political Science 1 and 9, 1 and 10, or 9-10	24
Elective*	(To satisfy minimum required credits)	10-12
Total		64

BUSINESS AND ECONOMIC STATISTICS

First two years of the Bachelor of Business Administration curriculum in Business and Economic Statistics of the School of Government, Business, and International Affairs:

		Semester Hours
Accounting	Accounting 1-2	6
Economics	Economics 1-2	6
English	English 1 or IX, 2	12
Foreign Language	See page 13 for foreign language requirement	6
Mathematics	Mathematics 21, 22, 33	4
Physical Education	See page 12 for statement of requirement	6
Political Science	Political Science 9-10	6
Philosophy	Philosophy 31-32	9
Statistics	Statistics 41 or 91, 5	6
Elective*		64
Total		

International Affairs

First two years of the Bachelor of Arts in Government curriculum in International Affairs of the School of Government, Business, and International Affairs:

		Semester Hours
English Composition	English 1 or IX, 2	6
English Literature	English 51-52, 71-72	12
Foreign Language	See page 13 for foreign language requirement	6
Geography	Geography 32	3
Mathematics or Science	Biology 1-2; Chemistry 3-4; Geology 1-2; Mathematics 3, 6; Physics 1-2 or former 11, 12; or Statistics 51, 52	6-8
Physical Education	See page 12 for statement of requirement	4
Social Studies	Economics 1-2; History 40, 71-72	15
Elective*	Political Science 1, 10 or 9-10	3-6
	(To satisfy minimum required credits)	4-9
Total		64

* Credit is not given for course covered by Physical Education or Secretarial Studies.
 † This requirement may be satisfied by 6 hours of Mathematics, by 3 hours of Mathematics plus Statistics 21, or by 6 to 8 hours of science.

II. Terminal Curricula

In addition to the above curricula, the lower division offers the following two year terminal curricula.

The curriculum in Accounting leads to the degree of Associate in Arts. The curriculum in Physical Sciences leads to the degree of Associate in Science.

Accounting

The required work may be completed in two years on a fulltime basis or in three years on a part time basis, with the approval of the adviser.

	Semester Hours
Accounting Accounting 1-2, 101, 111, 121-22, 161, 171, 181, 191.	
Business Administration 191	33
Business Administration Business Administration 141, 161, 162	9
English English 1-2	6
English English 1 or IX, 1	6
Physical Education See page 12 for statement of requirement	4
Foreign To be selected with the approval of the adviser	6
Total	64

Physical Sciences

The curriculum is designed for part time students who do not wish to extend their college education beyond the minimum hours of study. All other students interested in the study of physical sciences should follow the Columbian College Science curriculum.

	Semester Hours
Applied Science Applied Science 3	3
Chemistry Chemistry 11, 12, 21	12
English English 1 or IX, 1, 11	9
Mathematics Mathematics 9, 6, 11, 22, 23, 24	12-18
Physical Education See page 12 for statement of requirement	4
Science Physics 1 & 31 or 31-32	16
Foreign (Spanish 1, Elementary 1-2 suggested)	2-8
Total	64

Upper Division

A student working toward a Bachelor's degree in the arts or sciences who has 40 or more acceptable semester hours, whether earned in this University or transferred from another institution, is registered in the upper division of Columbia College. It is assumed that he has met the requirements of the lower division *Arts and Letters* or *Science* curriculum. If he has not, he must begin to make up his deficiencies immediately upon admission and continue to carry courses to this end until all requirements are met.

THE BACHELOR'S DEGREES

Columbia College through its upper division offers programs leading to the degrees of Bachelor of Arts, Bachelor of Science, and Bachelor of Science in Medical Technology.

In cooperation with the School of Medicine a seven-year curriculum leading to the combined degrees of Bachelor of Arts and Doctor of Medicine is offered.

REQUIREMENTS FOR THE DEGREES

RESIDENCE

A minimum of 20 semester hours, including at least 12 hours in the major field, must be completed in residence in the upper division of Columbia College. This requirement applies to students transferring within the University as well as to students transferring from other institutions. Summer work may be counted in residence, but in no case may the period of residence aggregate less than thirty weeks. Unless special permission is granted by the Dean to pursue work elsewhere, the work of the senior or final year must be completed in residence.

For the regulation governing students who are absent from the University for one semester or more, see page 35.

CURRICULUM REQUIREMENTS

The curriculum requirements for the Bachelor's degrees include at least 60 semester hours beyond those of the appropriate lower division curriculum and the satisfactory completion of the major. Each program must be approved by the major adviser and by the Dean.

At least 24 of the last 60 hours counted toward the Bachelor's degree must be taken in subjects* not included in the major field or department. The student should consult his major adviser at each registration concerning his choice of electives.

* Anthropology, Art, Biology, Business, Chemistry, Classics, Languages and Literatures, Economics, English, Geography and Regional Science, History, Mathematics, Law, Letters and Languages, Philosophy, Political Science, Psychology, Religion, Romance Languages, Social Science, Sociology, Statistics, Zoology.
American, French, and German are 3-1 courses. Civilization is a nondepartmental University-sponsored course, a requirement in a minor, see page 35.

Except for premedical and medical technology students, not more than 12 hours of professional courses may be included in the undergraduate program. The election of professional courses must be approved by the Dean's Council prior to registration. Ordinarily courses in Physical Education and technical courses in Education will not be approved toward a degree.

A change in degree candidacy (e.g., from Bachelor of Arts to Bachelor of Science) requires the permission of the Dean. The degree requirements effective at the time the change is approved must be met.

Each student must select and file with the Dean a choice of major upon entering the upper division. He may change the major only with the consent of the Dean and of the department or committee concerned, and must meet the requirements for the new major which are in effect at the time the change is approved.

For group courses may be required as prerequisites to the major, but because of their introductory character they may not be counted as part of such programs. (See "Explanation of Course Numbers.")

Students transferring from other institutions or from other schools, colleges, or divisions at this University with major requirements wholly or substantially met must complete satisfactorily at least 12 semester hours of approved work in the major field of the upper division of Columbia College. This work will count as part of the minimum residence requirement.

Examination for Waiving Curriculum Requirements.—A required course may be waived and admission to an advanced course granted by the satisfactory passing of a written examination prescribed by the department concerned. Passing this examination does not entitle the student to any hours of credit toward the degree. Written request to take the examination should be made to the Dean and the required fee paid at the Office of the Cashier before taking the examination.

INDEPENDENT STUDY PLAN

A junior or senior of demonstrated capacity, with special interest in the subject matter of a course, may be permitted to undertake independent study under the personal direction of an instructor, in accordance with the rules of the department or departments concerned. Credit under this plan is limited to the specific course-credits designated in the list of courses of instruction.

GRADUATE RECORD EXAMINATIONS

During the final semester of the senior year students in Columbia College are required to take the following Graduate Record Examinations: the Aptitude Test, which provides a measure of general scholastic ability at the graduate level; and Area Tests (several), which measure breadth of knowledge and understanding in three distinct areas of the liberal arts: Natural Science, Social Science, and the Humanities.

The examinations are conducted by the University twice a year: the Fall Testing Session for seniors graduating in February, and the Spring Session for those graduating in June. Students expecting to complete degree requirements during the summer should take the examination in the Spring Session. Dates of the examinations are announced in the *Schedule of Classes*.

Each senior must register in the Office of the Dean for the Graduate Record ex-

admission when he registers for his final regular semester of study (excluding summer sessions). A \$10 examination fee is payable at the time of registration.

Students will receive individual reports of test scores and may avail themselves of the regular transcript services of the Educational Testing Service. By special permission seniors who expect to graduate in June may take the Graduate Record Examination at the previous Fall Testing Session, so as to have transcripts available early in the year when applying for admission to graduate schools.

Bachelor of Arts

The work of the junior and senior years, including a major in one of the following fields, must be approved by the major adviser and by the Dean.

American Thought and
Civilization
Anthropology

Art:

Art History and Theory
Drawing and Painting
Sculpture
Advertising Design
Ceramics

Biology

Botany

Chemistry

Economics

English Literature

French Language and Literature

Geography

Geology

Germanic Languages and Literatures

History

Journalism

Latin

Latin American Civilization

Mathematical Statistics

Mathematics

Music:

Music History and Literature

Music Theory

Applied Music

Philosophy

Physics

Political Science

Psychology

Regional Science

Russian

Sociology

Spanish-American Literature

Spanish Language and Literature

Speech:

Speech

Dramatic Art

Urban and Regional Development

Zoology

Combined Degrees of Bachelor of Arts and Doctor of Medicine.—A candidate for the combined degrees of Bachelor of Arts and Doctor of Medicine must: (1) complete the Medical School entrance requirements; (2) fulfill the Arts and Letters curriculum of the lower division requirements (see page 14); (3) accumulate 94 semester hours in the liberal arts, including a minimum of 30 in the upper division of Columbian College; (4) obtain the approval of the Dean of Columbian College at the time of entering the School of Medicine; (5) obtain the recommendation of the Dean of the School of Medicine at the completion of all prescribed courses in the first year of the School of Medicine, at which time the degree of Bachelor of Arts will be conferred (professional work taken at another institution will not satisfy the prior requirement for the combined degrees); (6) maintain throughout the entire course the scholarship level required for graduation.

Bachelor of Science

The work of the junior and senior years, including a major in one of the following sciences, must be approved by the major department or division and by the Dean.

Biological Sciences

Biology
Botany
Zoology

Physical Sciences

Chemistry
Geology
Mathematical Statistics
Mathematics
Physics

The Undergraduate Major

There are two types of undergraduate majors: the field-of-study major and the departmental major.

THE FIELD-OF-STUDY MAJOR

The Field-of-Study Major covers a carefully worked out field of coordinated study and is under the supervision of the appropriate department and the Columbian College Committee on Studies.

The Field-of-Study Major requires no specific number of semester hours, no specific program of courses, and no specific quality-point index for the major, although the student is required to meet the usual general requirements for the degree (at least 32 semester hours with a quality-point index of at least 2.00). Ability to pass the examination is assumed to be a convincing demonstration that the student has attained breadth, depth, and quality of knowledge of his major usually defined in terms of semester hours, courses, grades, and a better than average quality-point average. A paragraph on each field is obtainable either from the appropriate adviser or from the Office of the Dean. The prospective student should place himself under the supervision of the appropriate adviser immediately upon completing lower division work and during his junior year.

The Field-of-Study Major places special emphasis on the intellectual development of the individual student. Progress in the same major may vary, depending upon the student's background, previous study, reading habits, and aptitudes. The student is expected to consult his adviser frequently, and the special seminar in the field gives him further opportunity for individual advice and direction. A program especially adapted to his needs and abilities. A close student-adviser relationship is essential for the student's success under the Field-of-Study Major.

The following Field-of-Study Majors are offered: American Thought and Civilization, English Literature, French Language and Literature, History, Latin American Civilization, Mathematical Statistics, Philosophy, Spanish American Literature, Spanish Language and Literature, Zoology.

The major in American Thought and Civilization and in Latin American Civilization are offered in two areas, those of Languages and Literatures and of Social Sciences. The other Field-of-Study Majors, with the exception of the major in Spanish

ish-American Literature, replace departmental majors in their respective fields. A candidate for a Bachelor's degree with a major in English Literature, French Language and Literature, History, Philosophy, Spanish-American Literature, Spanish Language and Literature, or Zoology must elect a Field-of-Study Major.

PROSEMINAR IN THE MAJOR

A proseminar is offered in each field to help the student in his reading, study, and laboratory exercises acquire a coordinated knowledge of his field. It is a presentation of the content and methods of the major field as a whole through the organization and coordination of the knowledge obtained in the various formal courses in the major subject and of material not usually included in such courses. This course is not required. Six semester hours, but no qualitative grade, may be assigned. When registered in this course, the student has the privilege of visiting, subject to the approval of the instructor, any other appropriate course offered in the College. (Regular attendance in a course, either for credit or as an auditor, requires registration and payment of tuition.) Proseminars are open only to the student who has been accepted as a candidate under that specific major.

THE MAJOR EXAMINATION

The Major Examination will normally be taken at the close of the senior year; a student on a limited schedule may take it no earlier than one calendar year before graduation. A student who fails to pass a Major Examination may, at the discretion of the Committee on Studies, be reexamined at a later regular major-examination period. The Committee on Studies has general supervision of the preparation, reading, and grading of Major Examinations. Major Examinations are held each semester on dates fixed by the department or departments concerned, but in no case later than January 15 for the full semester, May 15 for the spring semester, and August 7 for the summer session.

DEPARTMENTAL MAJORS

Departmental Majors, unlike *Field-of-Study Majors*, are defined in terms of credit hours, required courses, and the attainment of a quality-point index of at least 2.50 in all second-group courses taken in the major field. The minimum specific requirements for Departmental Majors are listed below the staff of instruction of the department concerned. The Chairman of the Department, or designated departmental advisor, should be consulted at registration concerning the student's program of courses, and the entire program, including electives, must be approved by the Department. The student is also expected to consult the Chairman or advisor in all matters affecting his program of studies, such as changes, substitutions, or withdrawals, and especially concerning his progress in his courses. A close student-advisor relationship is cultivated.

Departmental Majors are offered in the following: Anthropology; Art (1) Art: History and Theory, (2) Drawing and Painting, (3) Sculpture, (4) Advertising Design, and (5) Ceramics; Biology; Botany; Chemistry; Economics; Geography; Geology; German Language and Literature; Journalism; Latin; Mathematical Statistics; Mathematics; Music (1) Music History and Literature, (2) Music Theory, and (3) Applied Music; Physics; Political Science; Psychology; Regional Science; Re-

... Russian; Sociology; Speech (Speech or Dramatic Art); Urban and Regional Development.

Bachelor of Science in Medical Technology

In cooperation with the University Hospital and the Department of Pathology of the School of Medicine, Columbian College offers work leading to the degree of Bachelor of Science in Medical Technology, the fourth year of which (12 calendar months) is spent at the University Hospital.

A candidate for this degree must complete the Science curriculum in the lower division of Columbian College, see pages 14-15; fulfill the Columbian College requirements for degree, including 30 semester hours of residence in the upper division (senior year); and complete the 12-month Medical Technology Course in the University Hospital (senior year), which constitutes the major and prepares students for the certifying examination given by the Board of Medical Technologists. A candidate must make application to the Medical Technology School at the University Hospital early in the junior year. While admission to the Columbian College program does not assure acceptance into the Medical Technology School, The George Washington University students are given preference.

A limited number of scholarships are provided by the University Hospital for students entering in the fourth year of the degree program (see pages 41-42).

For further information concerning the Medical Technology School, call FE 3-9000, Ext. 990.



The Graduate Division

The graduate division offers programs leading to the degrees of Master of Arts, Master of Science, and Master of Fine Arts.

DEFINITION OF THE MASTER'S WORK

The study leading to a Master's degree is a comprehensive survey of an area of knowledge, usually in the student's undergraduate field, with emphasis on scholarly method.

The student must satisfy certain minimum requirements as to preparation, residence, ability to read an approved modern foreign (European) language, and courses taken, but these requirements, while essential, are regarded primarily as qualifying tests. The student's knowledge of his field as demonstrated by his thesis and by the results of his Master's examination (together with such other examination in special skills or techniques as the department or the Committee on Studies may require), is the basis upon which the Master's degree is conferred.

Master of Arts

Graduate work leading to the degree of Master of Arts is offered in the following fields:

American Literary and Cultural

History

Anthropology

Art History and Criticism

Biochemistry

Biology

Ecology

Chemistry

Forensics

French and American Literatures

French Literature

French Language and Literature

Geography

Germanic Languages and Literatures

History

Latin American Civilization

Mathematics

Mathematical Statistics

Mathematics

Microbiology

Physiology

Philosophy

Physics

Psychology

Political Science

Psychology

Religion

Religious Education

Sociology

Spanish American Literature

Spanish Language and

Literature

Speech Rehabilitation

Urban and Regional Development

Zoology

Special programs involving coordinated work in two or more departments may be arranged with the approval of the departments concerned and the Columbian College Committee on Studies.

Master of Science

Graduate work leading to the degree of Master of Science is offered in the following fields:

Anatomy
Biochemistry
Biology
Botany
Chemistry
Geochemistry
Geology

Mathematical Statistics
Microbiology
Pharmacology
Physics
Physiology
Psychology
Zoology

Master of Fine Arts

Graduate work is offered leading to the degree of Master of Fine Arts in the fields of painting, sculpture, or ceramics (see the Department of Art) and in the field of Dramatic Art (see the Department of Speech).

REQUIREMENTS FOR THE DEGREES

RESIDENCE

Normally, an academic year of residence in the graduate division of Columbian College is required, i.e., completion of a minimum of 30 semester hours of work including the thesis, which is counted as the equivalent of 6 semester hours of course work. Summer work may be counted in residence, but in no case may the period of residence aggregate less than twenty-seven weeks. Not more than 12 semester hours (which must be approved in advance by the Dean) may be taken in another school or division of this University, and such work may not be counted toward both a degree in that school or division and the Master's degree in Columbian College. *No part of the minimum requirement may be taken elsewhere.* All work for the degree of Master of Arts, Master of Science, or Master of Fine Arts must be completed within a maximum of three years, unless the Dean's Council considers the circumstances so unusual as to justify an extension of time.

SCHOLARSHIP

Grades are indicated as *E* (excellent), *S* (satisfactory), *U* (unsatisfactory), *I* (incomplete).

The grade of *E* must be attained in at least 6 semester hours of the course requirements for the degree.

A student whose scholarship is unsatisfactory may be suspended by the Dean upon recommendation of the department under which the student is working. A Master's candidate who accumulates 9 hours or more of *U* (including grades of *C* or lower in prerequisite courses) will be automatically suspended.

The symbol *I* (incomplete) indicates that a satisfactory explanation has been given to the instructor for the student's failure to complete the required work of the course.

An "Incomplete" can not be made up after the lapse of one calendar year except by special permission of the Dean's Council. An incomplete which is not removed within one calendar year is automatically changed to an *F*.

PROGRAM OF STUDIES

The student's program of studies must be outlined in detail at the beginning of each year, in triplicate, on forms available at the Office of the Dean. Each program is subject to the approval of the department and the appropriate member of the Committee on Studies. The program may be revised, but any change necessitates a repetition of the procedures just described.

The candidate for the Master's degree ordinarily may specialize exclusively in the field of his choice. Any student, however, whose undergraduate training does not include at least one full year of work in each of the following areas of study: (1) mathematics or science (with or without laboratory), (2) social science, and (3) the humanities (literature, philosophy, art, music, or religion), must make up this deficiency in his general education before being admitted to candidacy for the Master of Arts degree. This last provision does not apply to candidates for the Master of Science degree.

Courses numbered from 1 to 100 may not be credited toward the Master's degrees, but may in certain instances be required as a basis for advanced work. At least 6 semester hours of the course work required for the degree must be taken in courses numbered over 200. Courses numbered between 100 and 200 may be credited toward the degree, if completion of additional work has been certified by the appropriate School of Instruction. (See "Explanation of Course Numbers".)

A student who expects to continue his studies for the degree of Doctor of Philosophy after receiving the Master's degree is strongly advised to plan his program from the beginning so that work for the lower degree will constitute the initial stage of his general discipline and, upon completion, will admit him to full status in the Graduate Council.

FOREIGN LANGUAGE REQUIREMENT

Before being admitted to candidacy the student must show that he has a reading knowledge (certified by the appropriate foreign language department) of at least one foreign language, selected by the department or committee under which he is studying. A student whose field is a modern foreign language or literature may not offer his language in satisfaction of the reading knowledge requirement. Any candidate who wishes to meet the language requirement in French, German, Latin, Russian, or Spanish and has not passed the language examination by the end of 16 attempted semester hours must register for French 49, German 47 or 49, Latin 49 or 50, Russian 49, or Spanish 49, as part of his next registration. The Master's reading examination is given at the beginning and end of each of these courses and, if the course is completed in the summer, at the end of the term. No student will be permitted to take the examination after three unsuccessful attempts. Those enrolled in French 49, German 47 or 49, or Spanish 49, as part of his next registration, are excused from the course and receive a refund of tuition. Students who expect to take a reading examination in any approved language other than French, Spanish, or German should notify the Graduate Council at the time of registration.

Students are reminded of the necessity for early satisfaction of this requirement, and are urged to complete it not later than the end of the first semester of registration for the degree.

ADMISSION TO CANDIDACY

A student must be admitted to candidacy before he begins the last half of his work for the Master's degree, i.e., not later than the completion of 15 semester hours of degree courses. Application for admission to candidacy is made on a form obtained at the Office of the Dean, and must be approved by the appropriate representative of the department or committee and by the Dean. If a prospective candidate, on his previous academic work, has not substantially satisfied the prerequisites for the Master's degree, including the undergraduate major as defined by the appropriate department or committee, he will not be admitted to candidacy until such deficiency has been made up. He may make up his deficiencies by electing appropriate courses in addition to those counted toward his degree.

THE THESIS

The thesis may be of a research, expository, critical, or creative type. The main purpose of a Master's thesis is to demonstrate the student's ability to make independent use of the information and training acquired through his other disciplines and to furnish objective evidence of his constructive powers in his chosen field. The registration for the thesis must be no later than the beginning of the final year of preparation, unless the professor in charge of the thesis permits registration at the beginning of the final semester. The choice of the thesis subject must be approved by the professor in charge of the student's field and filed in the Office of the Dean by the date announced in the University calendar. Registration for the thesis is ordinarily made on the basis of 3 hours for each of two successive semesters. In exceptional cases, and with the approval of the professor in charge of the thesis, the student may register for the entire 6 hours during a single semester. The thesis in its final form must be presented to the Dean, no later than the date announced in the University calendar. Printed copies of detailed regulations regarding the form and reproduction of the thesis are available in the Office of the Dean.

Payment of tuition for the thesis entitles the candidate, during the academic year of registration, to the advice and direction of the member of the faculty under whom the thesis is to be written. In case a thesis is unfinished an additional successive academic year may be granted without further tuition payment. The student must, however, be registered in residence during this period. If the preparation of the thesis extends beyond the two-year period the student must register for it again, and pay tuition on the same basis as for a repeated course.

THE MASTER'S EXAMINATION

In addition to such other examinations as may be required, the candidate must pass a general written examination on the major subject. Examinations are held on dates fixed by the department or committee, but in no case later than January 15 for the fall semester, May 15 for the spring semester, and August 20 for the summer session. A candidate who fails to pass the Master's Examination may, in exceptional circumstances and with the specific approval of the Committee on Studies, repeat the examination, but only after the lapse of one semester. If he fails a second time, no further opportunity to take the examination will be permitted.

Admission

The University accepts both men and women. Students are admitted at the beginning of each semester and summer session.

The right is reserved to refuse admission to any student with an academic record which creates doubt of his ability to succeed in college or who, for any other reason, could not be an acceptable student.

APPLICATION FOR ADMISSION AND READMISSION

Forms for application for admission or readmission are available at the Office of the Director of Admissions, 2029 G Street NW, Washington, D. C. 20006; telephone: FE 340250, extension 344. The application for admission, with a \$15 application fee and a recent, signed photograph, should be returned to the Office of the Director of Admissions.

To insure consideration, the application, together with all required credentials, should be received by July 1 for the fall semester, January 1 for the spring semester, May 1 for the first summer session, or June 1 for the second summer session.

No application will be considered after September 1 for the fall semester, January 1 for the spring semester, June 1 for the first summer session, or July 1 for the second summer session.

An applicant from a secondary school must send the high school record form provided by the University to his high school principal, with the request that the completed form be mailed directly to the Office of the Director of Admissions.

An applicant who has attended one or more institutions of higher learning must request each registrar to mail directly to the Office of the Director of Admissions a transcript of his record, even though credits were not earned. If high school units are not shown on the college transcript, the applicant should request his high school to submit a transcript to the Office of the Director of Admissions.

TEST INFORMATION

The requirement of tests for Columbia College applicants coming directly from high school is specified on page X. The appropriate report of the Graduate Record Examination, when available, should accompany application for admission to graduate degree candidacy.

Arrangement for tests is the responsibility of the applicant and should be made with the Educational Testing Service, 20 Nassau Street, Princeton, N. J. 08540, or Box 100, Berkeley, Calif. 94701, not less than one month before the date of the test. The Bulletin of Information, obtainable without charge, contains descriptions of the tests, as well as rules regarding applications, fees, reports, and the conduct of the tests. In the application for the test, the student should specify that the scores be sent to the Director of Admissions, The George Washington University, Washington, D. C. 20006.

College Entrance Examination Board tests are given at a large number of examination centers throughout the United States, including Washington, D. C.

If the Committee on Admission and Advanced Standing prescribes other tests, necessary instructions will be sent to the applicant.

ADVANCED STANDING

CREDIT FOR ADVANCED PLACEMENT EXAMINATIONS

Up to 30 semester hours of credit may be granted for college-level courses in an approved secondary school, if substantiated by satisfactory performance in the Advanced Placement Examination. Arrangement for the examination is the responsibility of the applicant and should be made with the College Board Advanced Placement Examinations, Educational Testing Service, 20 Nassau Street, Princeton, N. J. 08540, or Box 1025, Berkeley, Calif. 94701, not less than one month before the date of the test.

The applicant must request the examining service to submit the test papers and scores to the Office of Admissions. Consideration is given to both the quality of performance on the examination and the quality and content of the courses of study completed by the applicant. Credit may be withheld pending satisfactory completion of higher-level courses in the same field.

CREDIT FROM HIGHER INSTITUTIONS

Advanced standing may be granted for work successfully completed at accredited institutions of higher learning. Credit will be granted for transferred work only when it meets the requirements for the degree sought at this University. It may be allowed provisionally, and it may be withdrawn for subsequent poor work. Work of low pass grade (*D* or the equivalent) will not be considered for transfer.

The student must be in good standing as to scholarship and conduct. He must be eligible to return to the last previously attended institution in the semester for which he seeks admission to this University.

SERVICE SCHOOL CREDITS

A limited amount of credit earned in service schools since 1941 may be considered for assignment to qualified degree candidates. Veterans should submit to the Director of Admissions photostatic copies of their service school records, indicating courses successfully completed with sufficient identification of the course to locate it in the Guide to Evaluation of Educational Experience in the Armed Forces.

READMISSION

A student previously registered in the University who was not registered on-campus during the immediately preceding semester (summer sessions excluded), must apply for readmission in the Office of the Director of Admissions. (See closing dates for application for admission, page 31.) If he applies as a degree candidate and was previously registered as a nondegree student, or if he has attended one or more higher institutions during his absence from the University, he must have complete

Official transcripts sent to the Office of the Director of Admissions from each institution attended. Applications for readmission are considered on the basis of regulations currently effective.

TRANSFER WITHIN THE UNIVERSITY

For information concerning transfer from one college, school, or division to another within the University, see page 46.

Entrance Requirements

Good character and an academic background appropriate for the program of studies contemplated are required.

UNDERGRADUATE

LOWER DIVISION

Requirements for admission to the freshman class are as follows:

1. An acceptable certificate of graduation from an accredited secondary school, showing at least fifteen units* which must include four years of English; at least two units of one foreign language; two years of science, preferably with laboratory instruction; two years of social studies, one of which must be American history; and one unit of college preparatory mathematics. It is to be noted that one unit of chemistry, or the equivalent, is prerequisite to courses in chemistry and statistics, and that one unit in algebra and one unit in plane geometry, or the equivalent, are prerequisite to courses in mathematics and physics.

2. The principal's statement that the applicant is prepared to undertake college work.

3. College Entrance Examination Board scores must be submitted on the Scholastic Aptitude Test and the English Composition Achievement Test. Applicants are required to submit scores on two additional achievement tests in subjects reflecting their major interests.

It is recommended that the examinations be taken in December or January. Scores are taken in the Junior year may be submitted. Arrangement for tests should be made with the Educational Testing Service, 20 Nassau Street, Princeton, N. J. 08540.

For 1925, Berkeley, Calif. 94701, not less than one month before the date of the test. In applying for the test, the student should specify that the scores be sent to the Director of Admissions, The George Washington University, Washington, D. C. 20057.

The Committee on Admission and Advanced Standing will consider the adequacy of the qualifications of an applicant who, because of unusual circumstances, does not meet all the formal requirements stated above. The student may be required to take appropriate scholastic-aptitude tests of the University.

UPPER DIVISION

Bachelor of Arts.—Sixty-four hours of academic work based on the Arts and Letters curriculum in the lower division, or the equivalent (see page 14).

*A unit represents a year's study in a secondary school subject, including in the aggregate not less than 120 minute periods, or the equivalent, of prepared classroom work.

Bachelor of Science.—Sixty-four hours of academic work based on the Science curriculum in the lower division, or the equivalent (see pages 14-15).

Bachelor of Science in Medical Technology.—Sixty-four hours of academic work including Biology 1-2, Chemistry 11-12, and Microbiology 211 and 212, or the equivalent (see pages 15-16).

GRADUATE

Required for admission to the graduate division are (1) an approved Bachelor's degree from an accredited higher institution, (2) an appropriate distribution of courses, and (3) a superior quality of work in the major field. A student from an unaccredited institution may be admitted at the discretion of the Committee on Admission and Advanced Standing, but he may be required to submit scores on the Graduate Record Examination or take extra work.

Applications for admission must be approved by the department and by the Dean.

Master of Arts.—A Bachelor of Arts degree at this University with a major in the chosen field, or the equivalent.

Master of Science.—A Bachelor of Science degree (Columbian College) at this University with a major in the chosen field, or the equivalent.

Master of Fine Arts (1) in the field of Painting or Sculpture.—A Bachelor of Arts degree at this University with a major in drawing and painting, sculpture, or commercial art, or the equivalent. (2) *In the field of Dramatic Art.*—A Bachelor's degree from an accredited college or university. Desirable undergraduate background includes courses in literature, drama, and the theater. Applicants with academic deficiencies may be enrolled in the program subject to the satisfactory completion of prescribed courses.

SPECIAL STUDENTS

Some students not immediately eligible for unqualified degree candidacy may be admitted as special students to demonstrate ability in a prescribed program, or to make up whatever deficiencies may exist.

The schedule of a special student is made up of courses required in the curriculum to which he wishes to transfer. The choice of courses must be approved by the Adviser. If the undergraduate student has not completed the language requirements of his chosen curriculum at the time of admission, he must include 3 semester hours of language in each 12 hours of work until the requirement is met. Second- or third-group courses may not be taken unless all first-group requirements have been met or are being met concurrently.

All special students are expected to consult with an adviser in Building P at least twice a semester.

Upon satisfactory completion of the prescribed program, the student is automatically assigned full status in the appropriate (lower, upper, or graduate) division of the College. Work satisfactory completed as a special student is normally applicable to the appropriate degree at the undergraduate level.

The terms of admission of a student attempting to qualify for graduate degree candidacy specify the amount of work applicable to the degree program if the student is later admitted to candidacy.

A student at the undergraduate level who fails to maintain a quality-point index of 2.00 may be dropped.

Registration

A student cannot register for classes until he has received a letter of admission to the University, issued by the Office of the Director of Admissions.

A student previously registered in the University who was not registered on campus during the immediately preceding semester (summer session excluded), must apply for readmission in the Office of Admissions.

No registration is accepted for less than a semester or one summer session.

A student may not register concurrently in this University and another institution without the prior permission of the dean of the college, school, or division in which he is registered in this University. Registration in more than one college, school, or division of the University requires the written permission of the deans concerned prior to registration. Allowance of credit for work done concurrently at another institution will be at the discretion of the appropriate committee.

IN RESIDENCE REGISTRATION

A student who is absent from the University for one semester or more is required to satisfy the curriculum requirements existing at the time of his return unless during his absence he maintains "in residence" status by paying the appropriate fee, as per page 76. For the purpose of this regulation the summer term will be disregarded.

The student who has completed his tuition requirements, but whose graduation is deferred for any reason, must maintain "in residence" status by paying the residence fee.

TIME AND PLACE OF REGISTRATION

Registration is conducted in Building C, 2029 C Street NW, during the following periods: *fall semester*, September 17 and 18, from 12:00 to 3:00 P.M.; *September 19*, from 10:00 A.M. to 1:00 P.M.; *spring semester*, January 23 and 24, from 12:00 to 4:00 P.M.; *January 30*, from 10:00 A.M. to 1:00 P.M.

Fees and Financial Regulations

Fees paid by students cover only a portion of the cost of instruction and of the operation of the University. Income from endowment funds, grants, and gifts from alumni and friends of the institution make up the difference.

The following fees were adopted for the academic year 1963-64.

Tuition Fees

For undergraduate and Master's study

Full-time program (12 to 18 hours), each semester*..... \$500.00
 Part-time program or hours in excess of 18, for each semester hour*..... 36.00

Additional Course Fees

In certain courses additional fees, such as laboratory and material fees, are charged as indicated in the course descriptions. These fees are charged by the semester and, unless otherwise indicated, may be defrayed in three payments when the first is paid in this manner. Breakage of apparatus is charged against the individual student. When breakage is in excess of the normal amount provided for in the laboratory fee the individual student will be required to pay such additional charges as are determined by the department concerned.

Graduation Fees

Associate in Arts or Associate in Science..... 10.00
 Bachelor's or Master's degrees..... 25.00
 6.00

Fee for Binding Master's Thesis

Special Fees

Application fee, nonrefundable..... 15.00
 Application for room reservation fee (see page 55)..... 100.00
 Admission tests (when required)..... 6.00-12.00
 Graduate Record Examination fee (to cover two examinations), charged each candidate for a Bachelor's degree at the time of registration for the final semester of study (excluding summer sessions)..... 10.00
 Late-registration fee, for failure to register within the designated period..... 5.00
 Change fee, for each change in program: dropping or adding a course, changing from one section to another within a course, change of status (from student to graduate status or vice versa), and change in credit hours for a course..... 2.00
 Withdrawal fee, charged in special cases..... 5.00
 Service fee, for late payment of tuition (see "Payment of Fees").....
 Readmission fee, for readmission after financial suspension.....
 Residence fee, to maintain "in residence" status during any semester of absence from the University or after completion of tuition requirements,† 36.00
 Due and payable on the usual days of registration.....

* Payment of tuition for a Master's thesis entitles the candidate, during the academic year of registration, to the library and equipment of the number of the faculty member whom the thesis is to be submitted. If more than one is submitted, no additional successive academic year may be granted without payment of tuition payment. The student must, however, be present at "in residence" during this period. If the completion of the thesis exceeds beyond the second academic year, it must be resubmitted for again, and tuition paid on the same basis as for a new course.
 † Payment of the residence fee entitles the student who is granted leave of absence to return and complete his work toward a degree within the academic requirements which were in force at the time of his last registration. The residence fee entitles toward neither financial nor residence requirements for the degree.

For special physical examination.....	2.00
For each examination to qualify for advanced standing and for each special examination.....	5.00
English test for foreign students (when required).....	5.00
Laboratory checkout fee, for failure to check out of chemistry laboratory by the due deadline set by the instructor.....	3.00
Transcript fee, for each transcript of record.....	1.00

Registration in the University entitles each student to the following University privileges: (1) the services of the Placement Office; (2) the use of the University library; (3) gymnasium privileges; (4) admission to all athletic contests, unless otherwise specified; (5) subscription to the *University Hatchet*, the student newspaper; (6) admission to University debates; (7) medical attention and hospital services as described under Health Services. These privileges terminate and a student is no longer in residence when he withdraws or is dismissed from the University.

PAYMENT OF FEES

All fees are payable at the Office of the Cashier, 725 Twenty-first Street NW. No student is permitted to complete registration or attend classes until all fees are paid. Fees are due and payable in advance at the time of each registration.

The student may sign a contract at the time of each registration for semester fees, except for fees payable in advance, permitting payments as follows:

Fall Semester.—One-third at the time of registration; one-third on the first working day* in November; one third on the first working day* in December.

Spring Semester.—One-third at the time of registration; one-third on the first working day* in March; one third on the first working day* in April.

Arrangements for the above may be made with the Office of the Cashier at the time of registration. Installment-due notices are mailed. However, nonreceipt of notice is no excuse for failure to meet obligations when due.

A student who fails to meet payments when due, but pays his fees within the following two weeks of the date on which payment is due, is charged a \$2 service fee.

A student who fails to meet payments within these two weeks after payment is due is automatically suspended and may not attend classes until he has been officially reinstated and paid all accrued fees and a \$5 reinstatement fee.

A student suspended for failure to meet payments when due may not be reinstated for the semester after two weeks from the date of suspension. Applications for reinstatement are to be made to the Office of the Cashier.

An auditor pays all fees chargeable to the student registered for credit except the registration fee.

WITHDRAWALS AND REFUNDS

Applications for withdrawal from the University or for change in class schedule must be made in person or in writing to the dean of the college, school, or division in which the student is registered. Notification to an instructor is not an acceptable withdrawal. See "Withdrawal", page 371.

Unauthorized withdrawals and changes in schedule, financial adjustments will be made as follows:

* The University work week is Monday through Friday.

Fall Semester

Full-time program.—Complete withdrawal from the University dated on or before the last working day* in October or November, cancellation of two-thirds or one-third, respectively, of the full-time program charges.

Partial withdrawal dated on or before the last working day* in October or November, cancellation of two-thirds or one-third, respectively, of the difference between the charges for the full-time program and the hourly charges of the part-time program continuing in effect.

Part-time program.—Withdrawal dated on or before the last working day* in October or November, cancellation of two-thirds or one-third, respectively, of tuition charges.

Spring Semester

Full-time program.—Complete withdrawal from the University dated on or before the last working day* in February or March, cancellation of two-thirds or one-third, respectively, of the full-time program charges.

Partial withdrawal dated on or before the last working day* in February or March, cancellation of two-thirds or one-third, respectively, of the difference between the charges for the full-time program and the hourly charges of the part-time program continuing in effect.

Part-time program.—Withdrawal dated on or before the last working day* in February or March, cancellation of two-thirds or one-third, respectively, of tuition charges.

No refund or reduction will be allowed on any withdrawal dated after the last working day* in November (fall semester) or March (spring semester).

A student enrolled in a full-time program, who drops or adds a course and continues to be in a full-time program, will have no financial adjustments of tuition made other than those involving course fees.

In no case will a refund be made of the first third of the total tuition charges. In no case will tuition be reduced or refunded because of absence from classes.

Payment applies only to the semester for which a registration charge is incurred and in no case will this be credited to another semester.

Students in chemistry who fail to check out of the laboratory on or before the date set by the instructor, unless required by the instructor, will be charged a \$3 checkout fee. A student who drops a course before the end of the semester must check out of the laboratory at the next regular laboratory period.

Students enrolled in the ROTC, who fail to turn in uniforms, equipment, and textbooks, on separation from the Corps, are charged the value of the missing items.

Authorization to withdraw and certification for work done will not be given a student who has not a clear financial record.

Students are encouraged to provide their own cash funds until they can make banking arrangements in the community.

* The University work week is Monday through Friday, inclusive.

Fellowships, Scholarships, Prizes, Financial Aid

FELLOWSHIPS AND ASSISTANTSHIPS

Unless otherwise specified, applications should be submitted not later than March 1, 1961, the period for which the award is to be made. They should be directed to the chairman of the department or the dean of the school concerned and addressed to the George Washington University, Washington, D. C. 20006.

University Teaching Fellowships—Assigned for the academic year to the various departments of instruction. The applicant is expected to be a prospective candidate for a doctoral degree in the general field of his future doctoral study. Each teaching fellow receives an annual stipend (on a nine-month basis) of up to \$2,000 plus tuition and laboratory fees for whatever schedule of study or research his fellowship permits him to carry. Tuition and laboratory fees may not exceed \$600. Stipends vary with the work load of the (individual teaching fellow. Normally a University teaching fellow renders half-time service in classroom or laboratory assignment to the department of instruction directing his doctoral study. Application should be made to the chairman of the department of instruction concerned.

Graduate Teaching Assistantships—Open in various departments of instruction to students for the Master's degrees. Each graduate teaching assistant renders a designated amount of service to his major department of instruction, and receives, dependent upon his teaching or laboratory assignment, up to \$2,000 on a nine-month basis plus tuition and laboratory fees for the program of studies which the duties of his assistantship permit him to carry. Tuition and laboratory fees may not exceed \$730. Application should be made to the chairman of the department of instruction concerned.

Graduate Teaching Fellowships in Behavioral Science—For information concerning these fellowships, consult the Director of the Center for Behavioral Sciences.

Gilbert Grosvenor Teaching Fellowship (1961)—Established by the National Geographic Society in honor of Dr. Grosvenor, an honorary trustee of the University. Awarded to a doctoral candidate in the field of human geography, with stipend up to \$1,700 and tuition fee for work leading to and including the General Examination for the Final Examination, as appropriate. Application forms are available in the Department of Geography and Regional Science.

John D. King Research Fellowships (1927)—By bequest, fellowships vary in amount from \$750 to \$3,000 are offered in the biological sciences to foster research in which the libraries and scientific establishments in Washington provide facilities.

National Science Foundation Cooperative Graduate Fellowships—Fellowships at \$2,400 for twelve months or \$1,800 for nine months, with tuition waived, are available in mathematical, physical, medical, biological, and engineering sciences and related fields.

in certain other fields regarded as employing scientific methods. Application should be made to the Graduate Council not later than November 1 for the following year.

Thomas Bradford Sanders Fellowships (1928).—Fellowships in departments of science, varying in amount from \$800 to \$1,500 plus tuition, established by bequest of Addie Sanders in memory of her brother.

SCHOLARSHIPS AND PRIZES

The following scholarships and prizes are limited to students in Columbian College of Arts and Sciences. The University offers many others which are open to Columbian College students. A special bulletin containing a complete list and full information may be obtained from the Chairman of the Committee on Scholarships, The George Washington University, Washington, D. C. 20006.

Scholarships are awarded for the academic year unless otherwise specified and are credited in equal parts for each semester. Each holder must carry a full schedule of academic work during the period for which the scholarship is awarded.

A letter of application should be submitted on or before April 1 for the following academic year and, unless otherwise specified, should be addressed to the Chairman of the Committee on Scholarships, The George Washington University, Washington, D. C. 20006. Awards are made during the month of April. All scholarships begin with the fall semester.

Alumni Scholarships.—Five scholarships are available each year in the lower division of Columbian College of Arts and Sciences, upon recommendation of alumni or regional alumni clubs, to outstanding graduates of accredited high schools outside the Metropolitan area of Washington, D. C. These scholarships provide full tuition for four academic years, beginning with the fall semester (excluding summer work and special fees). The student must maintain a B average. For information write to the Direction of Alumni Relations. A letter of application should be submitted to the Chairman of the Committee on Scholarships on or before February 1.

Byron Andrews Scholarship (1920).—A partial scholarship established by Bell Fisk Andrews in memory of her husband. Available to "ambitious and needy students, who desire to pursue courses in English, Latin, journalism, history, literature, or political science".

Colortone Graphic Arts and Publications Scholarship (1961).—An annual \$500 scholarship established by Colortone Press open to a senior student in Journalism planning a career in graphic arts.

Debate Scholarship.—Offered annually to a high school senior who intends to enter the lower division of Columbian College of Arts and Sciences and complete a Bachelor's program at this University.

The award covers full tuition for four academic years (excluding summer work and special fees), provided the holder maintains a B average and participates in the official University debate activities.

The scholarship is awarded on the basis of (1) participation in the Annual George Washington University High School Discussion Conference and (2) participation in

the Annual George Washington University High School Debate Tournament. Promising high school seniors in and outside the Washington Metropolitan Area, who have demonstrated outstanding ability in interscholastic speech activities, will also be eligible for consideration. Inquiries should be directed to the Department of Speech.

Robert Farnham Scholarship (1871).—Established by Mrs. Robert Farnham. Tuition aid for a student in Columbian College of Arts and Sciences.

Georgetown Business and Professional Woman's Club Scholarship (1953).—A partial scholarship for a woman student in the field of science.

Anna Spicker Hampel Scholarship (1949).—Established by Evelyn Hampel Young in memory of her mother, provides tuition aid for a young married woman in the School of Education or Columbian College of Arts and Sciences.

Emma Lewis Harvey Scholarship (1921).—A partial scholarship established by Emma Elizabeth Harvey in memory of her daughter. For a young woman in Columbian College of Arts and Sciences of the "Protestant faith and the Caucasian race, and of scholarship and moral qualifications."

High School Scholarships.—The Board of Trustees offers annually thirty-four scholarships to graduates of accredited high schools in the following Washington Metropolitan areas: District of Columbia; Fairfax-Falls Church; Alexandria City; Montgomery, Prince Georges, and Arlington counties. One of these scholarships, designated as the *Amos Kendall Scholarship*, was established in 1869 by the Honorable Amos Kendall.

These scholarships are awarded to students who intend to enter the lower division of Columbian College of Arts and Sciences and complete a Bachelor's program at the University.

The award covers full tuition for four academic years (excluding summer work and special fees). To retain a high school scholarship, an average of *B* and a satisfactory standard of deportment must be maintained.

Applications must be endorsed by principals and counselors of participating high schools and reported to The George Washington University Committee on Scholarships not later than February 1. Direct inquiries to high school counselor.

Howard Henry Howlett Scholarships (1962).—Bequest of Dr. Howlett for scholarships to "deserving students" in the upper division of Columbian College of Arts and Sciences.

Kappa Alpha Theta Scholarship (1950).—A \$500 scholarship established by the Washington alumnae for the training of a clinician in speech correction.

Kappa Kappa Gamma Scholarship (1959).—An annual \$400 scholarship established by the Washington alumnae for a student planning to follow the profession of speech correction.

Leon Sagman Art Scholarship (1963).—A partial scholarship for a freshman planning to major in art. The award will be granted upon completion of sophomore's work at this University. Direct inquiries to the Chairman of the Department of Art.

Mary Lowell Stone Scholarship (1873).—A partial scholarship available to a woman student of science in Columbian College of Arts and Sciences.

*Charles Clinton Swicker Scholarships (1911).—*Partial scholarships available in bequest of Professor Swicker. Available under certain conditions, to students of secondary history.

*University Hospital Scholarships in Medical Technology.—*Ten scholarships are available, each to cover the cost of 24 semester hours of the 30 in the last year of the curriculum leading to the degree of Bachelor of Science in Medical Technology. Inquiries should be directed to the Department of Pathology, The George Washington University Hospital.

*Ellen Woodhull Scholarship (1919).—*Tuition aid for a student in Columbian College of Arts and Sciences.

*American Institute of Chemists Prize.—*A medal and a one-year subscription to *The Chemist* awarded annually to the graduating student, majoring in chemistry, who excels in scholarship, integrity, and leadership.

*Byrce Thurtell Burns Memorial Prize.—*Awarded to the senior majoring in chemistry who shows the greatest proficiency in organic chemistry, as evidenced by a comprehensive examination, and who possesses such qualifications of mind, character, and personality as to give promise of future achievement.

*Chi Omega Prize.—*Awarded annually by Phi Alpha Chapter to the woman in the graduating class with the highest record in the following social sciences: economics, sociology, political science, and history; combined with general excellence.

FINANCIAL AID

STUDENT EMPLOYMENT

Graduate and undergraduate student assistantships are available in several departments of the University. Application should be made to the chairman of the department of instruction concerned.

The Placement Office maintains a registry of positions available in many fields of work and refers qualified applicants for consideration.

LOAN FUNDS

The following loan funds are available. Inquiries should be directed to the Office of the Treasurer.

*University Loan Fund.—*The Trustees of the University have made available a fund for short-term loans to students to provide for partial payment of tuition. Application should be made three days prior to the dates on which tuition installments are due.

*National Defense Student Loan Fund.—*This fund is available to full-time undergraduate and graduate students who are in need of financial assistance. Priority is given applicants who express a wish to teach in elementary or secondary schools, and whose academic background indicates a superior capacity or preparation in science, mathematics, engineering, or a modern foreign language. After application for admission to the University has been completed, application on forms prescribed for this loan fund must be filed in the Office of the Vice President and Treasurer no

late than (1) for the *fall semester*—June first for students currently registered in the University and July first for entering students; (2) for the *spring semester*—November fifteenth; (3) for the *Summer Sessions*—May first.

United Student Aid Funds.—This fund is available to full-time students who have completed their freshman year and are in need of financial assistance. Monthly payments begin after student finishes either undergraduate or graduate education. The application for admission to the University has been completed, application forms prescribed for this fund must be filed in the Office of the Vice President and Treasurer no later than: (1) for the *fall semester*—June first for students currently registered in the University and July first for entering students; (2) for the *spring semester*—November fifteenth; (3) for the *Summer Sessions*—May first.

Because many parents may wish some option in meeting and financing all or part of the cost of a college education, the University offers educational loan plans through the Grand Trust Corn Exchange Bank in Philadelphia, Pennsylvania; Funds for Education, Inc., Manchester, New Hampshire; and the Ropes National Bank, Washington, D. C.

Although similar in purpose, these plans vary somewhat in coverage and conditions. One-year and multiple year plans are available. Insurance covering the life and health of the sponsor is provided through these plans.

Individuals over twenty-one years of age who are employed full-time are also eligible to apply. They may sponsor their own contracts, provided they meet the conditions specified by the plan for which they are applying.

Brochures and applications describing these plans are available in the Office of the Vice President and Treasurer.

Regulations

A student who withdraws or is suspended, or is otherwise absent from the University for one semester or more, may re-enter and continue his work only under the rules and regulations in force at the time of his return. (See "In Residence Registration", page 35.)

If a student knowingly makes a false statement or conceals material information on an application for admission, registration card, or any other University document, his registration may be canceled and he will be ineligible (except by special action of the Faculty) for subsequent registration in any unit of the University.

AMOUNT OF WORK

A full-time student who is not on probation may take ordinarily not more than 15 semester hours. A student employed more than 20 hours a week, who is not on probation, may take not more than 10 hours.

A full-time student whose quality point index is 3.50 or higher may take not more than 19 hours. An employed student who meets the same standard may take not more than 12 hours.

A student who accepts employment after registration or at any time during a semester must report that fact immediately to the Dean so that his program may be adjusted, if necessary.

ATTENDANCE

The student is held responsible for all the work of the course in which he is registered, and all absences must be excused by the instructor in charge before provision is made for the student to make up work missed. Excessive absence in any course will lead to loss of credit in that course, even though other requirements, such as tests, term papers, and examinations, are met.

A student whose absences from any class, whether excused or unexcused, are in excess of one-fourth of the total number of class periods will receive the grade of F for the course, except by special ruling of the Dean on recommendation of the instructor.

SCHOLARSHIP

A student who fails to maintain the scholarship requirements of Columbian College of Arts and Sciences may be dismissed from the University.

GRADES

Grades are mailed to the student through the Office of the Registrar at the close of each semester. They are not given out by instructors.

Undergraduate.—The following grading system is used: A, excellent; B, good; C, average; D, passing; F, failing; CR indicates provisional or thesis credit. Whenever a grade has not been assigned the symbol I (incomplete) or the symbol W (authorized withdrawal) will be recorded. The symbol I indicates that a satisfactory explanation has been given the instructor for the student's failure to complete the required

work of the course. An "incomplete" cannot be made up after the lapse of one calendar year except by written permission of the Dean's Council. An incomplete which is not removed within one calendar year is automatically changed to an *F*. A student may not repeat for grade a course in which he has received a grade of *D* or worse, unless required to do so by the department concerned. A written statement to this effect must be submitted to the Registrar by the appropriate departmental chairman.

Graduate.—For graduate work, grades are indicated as *E* (excellent), *S* (satisfactory), *U* (unsatisfactory), *I* (incomplete).

THE QUALITY-POINT INDEX

Undergraduate scholarship is computed in terms of the quality-point index, obtained by dividing the number of quality points by the number of semester hours for which the student has registered, both based on the complete record in this University.

Quality points are computed from grades as follows: *A*, four points; *B*, three points; *C*, two points; *D*, one point; *F*, no points, for each semester hour for which the student has registered. Courses marked *W* or *I* are not considered in determining the index, except that courses marked *I* will be considered when a formal grade is recorded. An incomplete which is not removed within one calendar year is automatically changed to an *F*. Grades in courses taken at another institution are not considered in computing the quality-point index.

EXAMINATIONS

Examinations are scheduled at the end of each semester or at the completion of the course.

USE OF CORRECT ENGLISH

The use of correct English, oral and written, is required in all courses. Any student whose English in any course whatever is deemed unsatisfactory may be reported by the instructor to the Dean and to the Committee on the Use of Correct English. The Chairman of the Committee may assign supplementary work, without academic credit, varying in amount with the needs of the student. If the work prescribed is equivalent to a course, the regular tuition fee is charged. The granting of a degree may be delayed by failure to make up any such deficiency in English to the satisfaction of the Committee and the Dean.

ACADEMIC DISHONESTY

Evidence of dishonesty on the part of any student will result in his suspension by the Dean upon recommendation of the Dean's Council.

A student found guilty of dishonesty will be suspended for a stated period and will be deprived of credit for all courses in which he is enrolled during the semester in which the dishonest act occurs. A disciplinary grade of "Failure—Academic Dishonesty" will be recorded for each such course, and this grade will be employed in computation of the quality-point index.

If a student suspended because of academic dishonesty should be readmitted, he may be required to repeat for grade all courses for which a disciplinary grade has been recorded.

been recorded, and both the grade earned on repetition and the disciplinary "Failure—Academic Dishonesty" grade will be employed in computation of the quality-point index.

HONORS

Lower Division Honor Roll.—The name of every lower division student who has a quality-point index of 3.50 or higher on the basis of his complete record at this University is placed on the honor roll and published. To be eligible, the student must have completed no less than 15 semester hours. (A place on the honor roll does not necessarily mean that the student will receive honors upon graduation.)

Dean's List.—The name of every student who makes a quality-point index of 3.50 or higher on a minimum of 15 semester hours of work taken in any one semester is placed on the Dean's List for that semester.

With distinction.—A Bachelor's degree may be conferred "with distinction" at the discretion of the Faculty, if a student attains a quality-point index of 3.50 or higher on all work taken at this institution. To be eligible for this honor a student must have completed at this institution at least one-half of the work required for the degree.

Special honors.—Special honors may be awarded by the Faculty to the recipient of a Bachelor's degree for outstanding achievement in the major field of work on recommendation of the major department, under the following regulations:

1. The student must have his candidacy for special honors approved by the faculty member representing the major department or field not later than the beginning of the senior year.
2. The student must meet such other conditions as may be set at the time his candidacy is approved.
3. No student will be awarded special honors unless he has a quality-point index of at least 3.00 on all work taken at this institution.
4. To be eligible for honors a student must have completed at this institution at least one-half of the work required for the degree.

Military honors.—An Air Force ROTC cadet may be designated a "Distinguished Air Force ROTC Cadet" if he (1) has completed Air Science 101 and 102 with an academic standing among the upper third of the students enrolled therein; (2) has an accumulative academic average of B or better; (3) possesses high moral character and definite aptitude for service in the Air Force; (4) has distinguished himself by demonstrated leadership through participation in recognized extracurricular activities and while in attendance at an Air Force ROTC Summer Training Unit. A "Distinguished Air Force ROTC Cadet" is authorized to wear a "Distinguished Cadet" badge above the right breast pocket of the uniform. He may submit an application for a regular commission in the United States Air Force, which is given final consideration upon his designation as a "Distinguished Air Force ROTC Graduate."

An Air Force ROTC cadet may be designated a "Distinguished Air Force ROTC Graduate" if he has (1) been designated a "Distinguished Air Force ROTC Cadet" and maintained the standards required of a "Distinguished Air Force ROTC Cadet" during the period between designation and graduation; (2) completed the Air Force ROTC Advanced Course; and (3) completed the requirements for a Bachelor's degree. A "Distinguished Air Force ROTC Graduate" will be presented with a certificate awarded by the Commandant, Air Force ROTC, and, if he made application, will be considered for a regular commission in the United States Air Force.

PROBATION

An undergraduate student must maintain a quality-point index of at least 2.00 or be placed on probation. He remains on probation as long as his index is below 2.00. A student whose average is 2.00 or below for work undertaken during this probationary period is suspended. The student whose over-all quality-point index is still below 2.00 but whose average for work undertaken during the probationary period is 2.00 may be continued on probation by the Committee on Scholarship.

SUSPENSION

An undergraduate student whose index falls below 1.50 or who is placed on probation for a third semester, whether successive or after an interval, is suspended.

A student suspended for poor scholarship may apply for readmission after an interval of one calendar year. He must then submit evidence to the Committee on Admission and Advanced Standing that during his absence from the University he has improved himself as to indicate that he will profit by readmission. A student suspended twice for poor scholarship will not be readmitted.

Half-semester Warning.—At the end of the seventh week of each semester, instructions are in the Office of the Dean the names of freshman and sophomore students who are doing work of D grade or lower. A notice of Warning is sent to the student and to his faculty with the appropriate adviser. A "warning" constitutes notice to the student that he must consult his instructor and adviser at the earliest opportunity.

The foregoing scholarship rules are applied to a student with a limited schedule when he has undertaken a minimum of 15 semester hours.

WITHDRAWAL

Withdrawal from a course or from the University requires the permission of the Dean. Permission to withdraw from the University will not be granted a student who does not have a clear financial record. (See "Tuition and Financial Regulations", pp. 24 and 25-26.)

Withdrawal between the last working day* in October and the end of the fall semester and between the last working day* in February and the end of the spring semester is permitted only in exceptional cases.

Charges for courses dropped without the approval of the Dean must be met by the student. Reporting the dropping of a course to an instructor does not effect its discontinuance.

A student may not withdraw from either the basic course or the advanced course of the Air Force ROTC without the approval of the President of the University.

CHANGES IN PROGRAM OF STUDIES

Changes within a College, School, or Division.—A student may not change or drop courses (see "Withdrawals", above) or change his status to that of auditor except by the approval of the Dean.

*The University work week is Monday through Friday, inclusive.

Change from one section to another of the same course may be made with the approval of the Dean and the department concerned.

Change from one major subject to another within the same college or school may be made with the approval of the Dean. All requirements of the course of study to which the change is made must be met.

Transfer within the University.—Transfer from one college, school, or division to another may be made only with the approval of the deans concerned. Except in cases of normal progression from the lower division of Columbian College in a regular baccalaureate program, application for transfer must be made to the Director of Admissions on the form provided by his office.

Students wishing to transfer from the Division of University Students to a degree-granting college or school of the University should understand that consideration will be given only to courses approved as applicable toward the degree sought and that a maximum of 45 semester hours will be accepted in transfer.

Students transferring within the University should note that in all undergraduate divisions, except the College of General Studies, 30 semester hours, including at least 12 semester hours in the major field, must be completed in residence in the school or college from which the degree is sought. Upon transfer the student should consult the dean concerned and understand clearly the requirements he must fulfill. (For residence requirements for the Associate's degrees in the lower division of Columbian College, see page 14.)

CREDIT

Credit is given only after registration for a course and satisfactory completion of the required work, or upon the assignment of advanced standing.

On request the Registrar will issue to undergraduate degree candidates a balance sheet showing the amount of work completed and the requirements remaining to be met for the degree.

In special instances, a person who has been admitted to the University may be registered, with the permission of the instructor, as an "auditor" in a class (no academic credit). An auditor is not required to take active part in the exercises or to take examinations. A student who takes a course as an auditor may not take the same course later for credit.

TRANSCRIPTS OF RECORD

Official transcripts of student records will be issued on request of the student or former student. A fee of one dollar is charged for each transcript. No certificate of work done will be issued for a person who does not have a clear financial record.

SUMMER SCHOOL CREDIT

A student who plans to attend summer school sessions at another institution with the intention of having credits so obtained apply toward graduation from this University must first secure the written approval of the dean of his college or school. In no event will such credits be recognized to an amount in excess of that which might be earned in a similar period in this institution.

CORRESPONDENCE AND HOME-STUDY COURSES

No credit is given for work done by correspondence or in home-study courses.

GRADUATION REQUIREMENTS

To be recommended by the Faculty for graduation a student must have met the graduation requirements, completed satisfactorily the scholarship, curriculum, residence and other requirements for the degree for which he is registered, and be free from all indebtedness to the University.

Residence Status.—A student who is absent from the University for one semester or more is required to satisfy the curriculum requirements existing at the time of his return, unless during his absence he maintains "in residence" status by paying the residence fee, see page 36.

The student who has completed tuition requirements, but whose graduation is delayed for any reason must maintain "in residence" status by paying the residence fee.

Application for Graduation.—Application must be filed in the Office of the Registrar at the time of registration for the last semester or summer session of the senior year. Students expecting to complete requirements for degrees during the summer session must apply for graduation as a part of registration for the Summer Session.

Graduate Record Examination.—All candidates for Bachelor's degrees are required to take two parts of the Graduate Record Examination (see pages 21-22).

Attendance and Conduct.—The University reserves the right to refuse to confer a degree upon a candidate whose attendance or conduct has been unsatisfactory.

Graduation in Absentia.—Application for graduation in *absentia* must be submitted to the Dean.

THE LIBRARY

A student registered in the University is entitled to the reference use of the University Library. The Student Identification Card, issued upon the payment of fees, must be presented as identification.

The hours of the University Library and the Law Library are Monday through Friday, 9:00 A.M. to 10:00 P.M.; Saturday, 9:00 A.M. to 5:00 P.M.; Sunday, 2:00 to 6:00 P.M. The Medical Library is open Monday through Friday, 9:00 A.M. to 10:00 P.M.; Saturday, 9:00 A.M. to 4:00 P.M.

The loan period for most books available for home circulation is two weeks, with an additional two-week renewal. A fine of five cents will be charged for each day a book is overdue. Any book which does circulate is subject to recall by the Librarian at any time. Reserve books for collateral reading must be used in the reading rooms while the Library is open. With special permission they may be drawn for over-
due in the hour or fraction of an hour and two cents for each hour or fraction thereof that a reserve book is overdue. Grades of a student will be withheld until his library record is clear.

The University has access to the Library of Congress, the Public Library of the District of Columbia and its branches, the Library of the Pan American Union, the Library of the Bureau of Railway Extension, the Library of the United States Department of Agriculture, the Library of the United States Office of Education, the National Library of Medicine, the Library of the Smithsonian Institution, and many of the most important collections of the government departments.

RIGHT TO DISMISS STUDENTS

The right is reserved by the University to dismiss or exclude any student from the University, or from any class or classes, whenever, in the interest of the student or the University, the University Administration deems it advisable to do so.

RIGHT TO CHANGE RULES

The University and its various colleges, schools, and divisions reserve the right to modify or change requirements, rules, and fees. Such regulations shall go into force whenever the proper Authorities may determine.

PROPERTY RESPONSIBILITY

The University is not responsible for the loss of personal property in any University building. A "Lost and Found" Office is maintained in the Student Union.

CLASSIFICATION OF STUDENTS

A *freshman* is a student who is in the process of completing 32 semester hours, including 18 hours of his curriculum requirements.

A *sophomore* is a student who has completed between 32 and 64 hours, including 18 hours of his curriculum requirements.

A *junior* is a student who has completed between 64 and 94 hours and filed the declaration of his major, approved by his adviser, in the Office of the Dean.

A *senior* is a student who has completed between 94 and 124 hours, including at least 6 hours of second-group work in his major.

A *master in course* is a student who has satisfactorily completed the work for the Bachelor's degree and filed his approved program of study in the Office of the Dean.

A *special student* is a student not immediately eligible for unqualified degree candidacy but admitted to Columbian College to demonstrate ability in a prescribed program or to make up deficiencies.

Veterans Education

The personnel of the Office of the Dean of Men act as advisers to veterans and war orphans and in a liaison capacity between the University and the Veterans Administration. This Office should be consulted concerning educational benefits before applying to the Veterans Administration for certification. The Veterans Administration is on Constitution Avenue at Twentieth Street NW., Washington, D. C. 20421. Students eligible under one of the state laws should also contact this Office.

PUBLIC LAW 634 (WAR ORPHANS' EDUCATIONAL ASSISTANCE ACT)

A child of a person who died of a disease or injury incurred or aggravated while on active duty in the Armed Forces during World War I, World War II, or the

World Conflict may be eligible for educational assistance under this Act, if certain requirements are met. In the case of a child who has not reached the age of majority, his guardian must make application for him to the Veterans Administration.

PUBLIC LAW 190 (WORLD WAR II GI BILL EXTENSION)

The educational benefits for World War II veterans terminated July 25, 1956, except for persons eligible under special entitlement provision.

PUBLIC LAW 550 (KOREAN GI BILL)

To be eligible, a veteran must have been in service between June 27, 1950 and January 31, 1955, no longer be on active duty, and have begun his education within two years after separation. Such students have eight years from separation or January 31, 1965, whichever is earlier, to use their benefits.

Application for benefits to the Veterans Administration should be made as early as possible. V.A. approval should be presented to the veterans' adviser from the Office of the Dean of Men during the registration procedure.

PUBLIC LAWS 16, 894, AND 87 815 (VOCATIONAL REHABILITATION)

Selected veterans desiring vocational rehabilitation under these laws should apply to the Veterans Administration for approval of their training objectives at least sixty days prior to registration.

Air Force Reserve Officers Training Corps

The purpose of the Air Force ROTC is to develop in selected college students, through a permanent program of instruction at designated civilian educational institutions, those qualities of leadership and other attributes essential to their progression to positions of increasing responsibility as commissioned officers in the United States Air Force.

PURPOSE AND OBJECTIVES OF AIR FORCE ROTC

1. To select and motivate cadets to serve as career Air Force officers in fields as specifically required by the United States Air Force.
2. To develop in cadets by precept, example, and participation the attributes of character, personality, and attitudes essential for leadership.
3. To develop in cadets an interest in, and understanding of, the Air Force mission, functions, operations, problems, and techniques.
4. To provide that military education and training which will give cadets a general background and sound foundation on which to build an officer career.
5. To select and motivate cadets for career fields as specifically required by the United States Air Force.

COURSE OF STUDY, ELIGIBILITY REQUIREMENTS, BENEFITS

The program is divided into the basic course covering the first two years and the advanced course covering the junior year, summer training unit, and senior year. For a description of Air Science courses, see pages 171-72.

Enrollment in the basic course is open to all men students who are at least 14 years of age, physically fit, of good character, and candidates for Bachelor's degree. Women students may enroll in the basic Leadership Laboratory course. Enrollment in Leadership Laboratory satisfies the physical education requirement for men and women.

Enrollment in the advanced course is on a selective basis from among the qualified cadets who have successfully completed the basic course. Cadets in the advanced course receive subsistence allowances from the Government totaling approximately \$500, which is exempt from income tax. During the period of summer training, cadets receive \$75 a month, food, lodging, and travel expense. Textbooks, and training materials are provided for all Air Science courses at no expense to the cadet.

Cadet candidates for pilot training are afforded an opportunity to take 30 hours of flying instruction at government expense. Flying instruction is given at an FAA approved school and is creditable toward a private pilot's certificate.

MILITARY SERVICE DELAY

Deferment from induction under the Selective Service Act of 1951 may be granted to selected cadets within the authorized quotas.

Health Services

The Health Services Staff assists students with their medical needs by advice and treatment, by proper referral when necessary, and by cooperation with other physicians. For medical emergencies and health consultations there is, on the campus, the Student Health Clinic open from 9 A.M. to 5 P.M., Monday through Friday, during the academic year and Summer Sessions, with physician and nurse in attendance. There is also a rest room for women, with a graduate nurse in charge. For night and weekend emergencies, students may go to the emergency room of the University Hospital for treatment. The basic fee for this visit will be paid by the Health Services, and all other charges will be the responsibility of the student. This arrangement is for emergency care only.

Student privileges include: (1) physical examination of all students who are applicants for courses in Physical Education;* (2) three visits in any one illness by a member of the Health Services Staff, office or residence (District of Columbia); (3) hospitalization, including board and nursing, in the University Hospital for not more than one week during any twelve-month period—the necessity to be determined by the Director of Health Services†. All additional hospital charges for operating room, medicines, laboratory, X-ray, medications, or any special services must be paid by the student. Expenses incurred for examinations and treatment by specialists, such as eye refraction and provision of glasses; orthopedic examinations and appliances; cast or other appliances; laboratory and X-ray work; and surgical operations must be paid by the student.

Student benefit applies only to illness or disability incurred while currently attending the University. It does not apply to illness or disability incurred before the last day of examinations for a semester or summer session and completion of the next semester or summer session.

A student is allowed, if he so desires, to engage physicians and nurses of his own choice, but when he does so he will be responsible for the fees charged.

(1) The Director of Health Services is empowered to limit or deny the medical services where, in his discretion, a student has, by his misconduct or breach of discipline, made himself ineligible; (2) the Director of Health Services reserves the right to determine the necessity and length of hospitalization; (3) a student is ineligible for medical benefits; (4) a student intending to train for an athletic career is required to pass a thorough examination at the beginning of each semester. The University is not responsible for injuries received in intercollegiate or intracollegiate sports or in any of the exercises of the physical education departments.

The University is not responsible for the same illness.

* Charge for a special physical examination is made by the University if a student fails to appear for a physical examination during his period set for this purpose.
† See page 15 for exceptions.

The Reading Center

The Reading Center, 2018 I Street NW., offers individual diagnostic and corrective services for all levels: primary, elementary, secondary, and adult. In addition special reading improvement classes are conducted on the high school and adult level.

A complete diagnosis includes psychological tests: vision, hearing, and dominance tests; and the various reading and spelling tests. Results are interpreted and a written report is presented in conference with the parents or the individual.

The special reading classes for high school students and adults are offered throughout the year at stated intervals. Emphasis is placed on improvement of vocabulary, speed, comprehension, and study skills. Machines such as the tachistoscope, rate of speed, and controlled reader are also used for increasing speed of comprehension.

Fees.—The fee for individual diagnosis is \$45; for individual instruction, \$6 a lesson; for semi-individual instruction, \$5 a lesson; for instruction in small groups with common reading difficulties, \$3.75 a lesson (\$3.25 for students currently registered in the University). All fees are payable in advance at the Office of the Controller.

The Testing and Counseling Center

The Testing and Counseling Center, 718 Twenty-first Street NW., offers services which are available primarily to students enrolled in the University, and secondarily to high school students and to adults of the community.

The services are designed to assist individuals in the evaluation of their educational and vocational potentialities and objectives, diagnose academic difficulties, provide educational and vocational literature and information, and refer individuals to qualified agencies for assistance with problems not handled by the Center.

The Center provides special testing services including: diagnostic tests prescribed by the School of Engineering and Applied Science, admissions tests for the University and for other selected educational institutions, and tests for business and industry.

Fees.—For students who are currently registered as degree candidates in the University, the fee is \$10; for students currently enrolled in the University but not as degree candidates, the fee is \$20; for graduates of the University, \$40; for community clients, \$65. Fees for specialized testing are dependent upon the services involved. All fees are payable to the Office of the Center.

Student Life

RESIDENCE HALLS

RESIDENCE HALLS

Complete information concerning the University's residence halls is available at the Office of the Dean of Men or the Office of the Dean of Women, The George Washington University, Washington, D. C. 20006.

Information concerning off-campus housing near the University may be obtained from the Office of the Dean of Men. The reservation of rooms in private houses must be made by students.

Application to the University does not include a room reservation. A separate application for a room should be made well in advance (for the fall semester by May 15, for the spring semester by January first). Rooms are leased for the academic year for a deposit of \$100, which is credited toward the fall semester room charge. If notice of withdrawal or cancellation of room reservation is received before June 1, \$50 of the deposit will be refunded. Room rentals are payable in advance by the semester.

RESIDENCE HALL RATES FOR TWO SEMESTERS

	Room and Food Service	Room only
MIN:		
Main Hall		
dorm room		
study room	\$900	—
Concord Hall	850	—
dorm Hall	900	—
study Hall	900	\$400
study Hall	920	420
study Hall	820	320
WOMEN:		
New Residence Hall		
study Hall	\$950	—
study room		
study room	950	\$450
	1,035	535

FOOD SERVICE

FOOD SERVICE

Students of the new women's Residence Hall, Crawford and Adams Halls participate in a room and food service plan. The food service is optional for the residents of Madison, Strong, and Welles Halls. Meals may be taken either in the Women's Residence Hall or in the Residence Hall dining room at the University. Well-balanced meals are served cafeteria style seven days per week. Food service payment does not cover University holidays or vacation periods.

For married women

Food service payment does not cover University holidays or vacation

more hours during a summer session are required to live in the University residence halls or at home with their parents. Upon written approval of their parents and the permission of the Dean of Women, freshman women may live with immediate relatives and upperclass women may live with contemporaries of their parents. Under no circumstances may an unmarried woman student under twenty-two years of age taking a full academic program live in an apartment with her contemporaries.

All unmarried freshmen, men under twenty-one years of age and enrolled for six or more hours of academic work during the fall or spring semester or six or more hours during a summer session, are required to live in the University residence halls or at home with their parents. In exceptional cases permission to live elsewhere may be given a student by the Dean of Men.

STUDENT UNION

The Student Union, 2125 G Street NW., is the center for student life. From the cafeteria on the first floor to the reading room on the fourth floor, it is well equipped to meet the students' need for meals, study, recreation, and activities. In addition to the recreation lounge and social lounge the Student Union provides office space for the Student Council and for the other major student organizations.

The Student Activities Office, also in the Student Union, has information concerning the student organizations and campus events.

RELIGIOUS LIFE

The University recognizes the contribution that religion makes to the life of its students and encourages them to participate in the various religious organizations of their own choice. Catholic, Jewish, and Protestant bodies sponsor these groups and form a link between the University and the religious community. The advisors of the religious organizations are available for counseling.

UNIVERSITY CHAPEL

The University Chapel is maintained as a nonsectarian service of worship for the University community. The service is held Wednesday of each week from 12:10 to 12:30 o'clock at 1006 H Street NW. Among the guest speakers are representative clergymen of Washington. The Director of University Chapel is available for counseling and conference.

THE PLACEMENT OFFICE

The Placement Office, 2114 G Street NW., provides assistance to students and alumni seeking full-time, part-time, temporary, or permanent employment. The Office maintains a registry of positions available in many fields, both locally and nationally, and refers qualified applicants for consideration. The Office administers the On-Campus Industrial and Government Recruitment Interview Program for senior and graduate students, in which well over 150 private companies, as well as certain government agencies, participate. This program offers outstanding employment opportunities to persons seeking career positions.

Students and alumni interested in placement are asked to register in person at the Office and to select from written descriptions of current openings positions for which they wish referral. Those interested in planning careers are invited to study the

Information on career fields and the brochures of business, industry, and government, and are on display in advance of campus visits by recruiting officers. The services of the Counseling Center are available to students and alumni wishing career guidance.

The Placement Office is open from 9.00 A.M. to 5.00 P.M., Monday through Friday.

INTERNATIONAL HOUSE

International House 2110 G Street NW., is the social center for students from foreign countries. A series of teas, dinners, and other forms of entertainment, and the use of club rooms and lounge enable students to become acquainted and feel at home at the University.

The International Students' Society welcomes as members students from other lands as well as North American students.

The Adviser to Students from Foreign Countries, whose office is in International House, is available for advice and guidance.

STUDENT ACTIVITIES

The University maintains the offices of the Dean of Men and the Dean of Women, for the guidance of students in all nonacademic phases of student life, such as student activities, social life, and housing. The deans are available for individual counseling concerning personal adjustment to university life.

STUDENT GOVERNMENT

Student Council.—The University believes in encouraging the development of a sense of civic responsibility in its students by delegating to them such authority in student activities as is consistent with established policy and regulations. To this end, the organization of the University includes the Student Council, which, under the guidance of the Dean of Men and Dean of Women, is responsible for the conduct of all student activities. The Student Council is elected annually by the student body.

Committee on Student Life.—The Committee on Student Life has the power to review the acts of all student organizations, including the Student Council, and set aside acts that are contrary to established policy and regulations of the University or the Committee. This Committee is given authority to approve or disapprove the establishment of any proposed organization on campus.

ELIGIBILITY FOR STUDENT ACTIVITIES

Any student registered in the University is eligible to participate in nonathletic student activities of the University; however, a student having a scholastic average of less than 2.00 is not eligible to be:

1. A member of the Band, Dance Production groups, Freshman Debating Society, Glee Club, Cheerleaders, Student Council, Religious Council, Panhellenic Council, Interscholastic Council, Freshmen's Council, Student Life Committee, any Residence Hall Council, or any publications staff.
2. An officer, permanent committee chairman, or member of the executive board of any activity.

The rules and policies of the Southern Conference govern participation in intercollegiate athletics.

The control and administration of all student activities are outlined in a separate bulletin called "Rules and Regulations Governing Student Activities."

SPORTS

The University is a member of the Southern Conference and the National Collegiate Athletic Association. Its teams participate in intercollegiate contests in football, basketball, baseball, tennis, golf, rifle, sailing, and crew.

The University maintains a complete program of intramural sports for both men and women. The men's program is conducted by the Intramural Council. The Women's Athletic Association and Interscholastic Athletic Board cooperate with the department of Physical Education in conducting the women's intramural and informal extra-mural sports program in tennis, hockey, basketball, rifle, swimming, golf, bowling, and badminton.

Other sports activities are included in the Sailing Association and the Rowing Club.

PERFORMING ARTS

Students may participate in dance, drama, forensics, and music through the following organizations: Dance Production Groups I, II, III (Modern Dance) and Folk Dance; Emancipator Debating Society; Folk Singers Club; University Players; University Glee Club; and University Orchestra. Each of these groups presents programs during the academic year.

With the cooperation of the Curator of Art, an annual student art exhibit is presented.

ANNUAL EVENTS

Colonial Program.—The Student Council sponsors a variety of programs to which all students are invited.

Recreation Program.—The Student Council and the Dance Production Groups arrange dances—square, folk, and social—at frequent intervals for all students.

Concert Program.—The Student Council sponsors a concert each semester at which well known entertainers perform.

Homecoming.—Scheduled about the middle of the fall semester, Homecoming is the primary festive period of the school year. It includes the annual Pep Rally and homecoming show, the homecoming football game, and the homecoming dance.

Religion in Life Program.—Special emphasis is given to the place of religion in contemporary society in this program of events during the fall and spring semester. It is sponsored by the University Chapel.

Holiday Season.—The University traditionally greets the holiday season with appropriate ceremonies including the lighting of the Christmas tree, the singing of Handel's Messiah, and the observance of a special Christmas service at the University Chapel.

May Day.—This is the traditional time for the award of honors in student activities. Mortar Board and Omicron Delta Kappa announce and present their new members.

STUDENT ORGANIZATIONS

HONOR SOCIETIES

Pi Beta Kappa.—A national honor society recognizing "outstanding intellectual capacity well employed" in the field of liberal arts and sciences. Senior and junior students who are candidates for the degree of Bachelor of Arts or Bachelor of Science in Columbian College and who have shown broad cultural interests, distinguished scholarly achievement, high character, general promise, and scholarly ideals may, to a number not exceeding 15 per cent of a class, be elected to membership by the Faculty members of the Alpha Chapter of the District of Columbia.

Sigma Xi.—A national scientific honor society, the purpose of which is to encourage original investigation in science pure and applied. Outstanding graduate students in the sciences are eligible for full membership, and undergraduates who have shown marked ability in research may be elected to associate membership.

Aesculapian Society.—An honorary premedical fraternity.

Alpha Kappa Delta.—A national sociology society.

Alpha Lambda Delta.—A national fraternity established to encourage and reward high scholarship and attainment, membership in which is limited to those freshman women who attain a scholastic average of at least 3.50.

Arnold Air Society.—A national Air Force ROTC society for advanced cadets.

Delphi.—An intersorority society.

Delta Sigma Rho-Tau Kappa Alpha.—A national forensic society.

Gate and Key.—An intrafraternity society.

Iota Sigma Pi.—A national chemical society for women.

Mortar Board.—A national society for senior college women, stressing leadership, scholarship, and service.

Omicron Delta Kappa.—A national fraternity emphasizing leadership in extracurricular activities.

Order of Scarlet.—A service honorary society for sophomore and junior men.

Pershing Rifles.—A national Air Force ROTC society for basic cadets.

Phi Epsilon Phi.—A national botany fraternity.

Phi Eta Sigma.—A national fraternity, established to encourage and reward high scholarship and attainment, membership in which is limited to those freshman men who attain a scholastic average of at least 3.50.

Phi Sigma Tau.—A national philosophy honor society.

Pi Delta Epsilon.—A national collegiate journalism fraternity.

Pi Epsilon Delta.—A national drama honorary fraternity.

Pi Gamma Mu.—A national social-science society.

Pi Chi.—A national psychology fraternity.

Sigma Alpha Eta.—A national speech and hearing fraternity.

Sigma Pi Sigma.—A national physics fraternity.

Tasels.—A service honorary society for sophomore women.

PROFESSIONAL ORGANIZATIONS AND DEPARTMENTAL CLUBS

Alpha Chi Sigma (chemistry), Alpha Kappa Psi (commerce and economics), Club Español, Enochian Debating Society, Le Cercle Français, Lester F. Ward Sociological Society, Phi Delta Gamma (graduate), Phi Sigma Tau (philosophy), Russian Club, Sigma Delta Pi (Spanish).

SOCIAL FRATERNITIES

Sigma Chi, Kappa Sigma, Phi Sigma Kappa, Sigma Alpha Epsilon, Sigma Phi Epsilon, Phi Sigma Delta, Sigma Nu, Tau Kappa Epsilon, Pi Kappa Alpha, Tau Epsilon Phi, Alpha Epsilon Pi, Delta Tau Delta.

SOCIAL SORORITIES

Pi Beta Phi, Chi Omega, Sigma Kappa, Alpha Delta Pi, Delta Zeta, Kappa Delta, Phi Sigma Sigma, Zeta Tau Alpha, Kappa Kappa Gamma, Delta Gamma, Kappa Alpha Theta, Alpha Epsilon Phi, Sigma Delta Tau.

RELIGIOUS ORGANIZATIONS

Baptist Student Union, B'nai B'rith Hillel Foundation, Canterbury Association, Christian Science Organization, Eastern Orthodox Club, Lutheran Student Association, Newman Club, Student Christian Fellowship, Unitarian Club, United Christian Fellowship, Wesley Foundation, and a Religious Council comprised of representatives of all religious organizations.

STUDENT PUBLICATIONS

The Cherry Tree (the annual), *The University Hatchet* (weekly newspaper), *The Potomac* (literary magazine), *The Student Handbook*.

OTHER ORGANIZATIONS

Alpha Theta Nu (scholarship society), Big Sisters, Cheerleaders, Chess Club, Colonial Boosters, Cultural Fraternity, Foxxy Bottom Sports Car Club, Interfraternity Council, International Relations Club, International Students' Society, Inter-sorority Athletic Board, Junior Panhellenic Association, Old Men, Pre-legal Society, Residence Hall Council, Rifle Club, Senior Panhellenic Association, Station WRGW, Student Council, University Pep Band, Wandering Greeks, Young Democrats Club, Young Republican Club.

Courses of Instruction

On the following pages of this CATALOGUE, under the alphabetically arranged names of the departments of instruction, are listed the courses of instruction offered by the University in the liberal arts and sciences in the summer of 1964 and in the academic year 1964-65. The courses as here listed are subject to some slight change. The University reserves the right to withdraw any course announced.

HOURS OF INSTRUCTION

Courses are scheduled in the morning, afternoon, and evening. Evening and day sessions of the same course are identical, are taught by the same staff of instructors, and carry the same amount of credit.

EXPLANATION OF COURSE NUMBERS

Undergraduate courses.—Courses numbered from 1 to 100 are planned for students in the freshman and sophomore years. With the approval of the adviser and the instructor, they may also be taken by juniors and seniors. In certain instances, they may be taken by graduate students to make up undergraduate deficiencies or as prerequisites for advanced courses, but they may not be credited toward a higher degree.

Graduate group courses.—Courses numbered from 101 to 200 are planned for students in the junior and senior years. They may be credited toward higher degrees if registration for graduate credit has been approved at the beginning of the semester by the dean responsible for the graduate work and by the instructor, and when completion of additional work has been certified by the instructor.

Open group courses.—Courses numbered from 201 to 300 are planned primarily for graduate students. They are open, with the approval of the instructor, to qualified students; they are not open to other undergraduates.

INDICATION OF THE AMOUNT OF CREDIT

The number of semester hours of credit given for the satisfactory completion of a course is indicated in parentheses after the name of the course. Thus, a year course giving 6 hours of credit each semester is marked (3-3), and a semester course giving 3 hours of credit is marked (3). A semester hour usually consists of the completion of one hour of class work or of one laboratory period a week for one semester.



DEAN LINTON AND STUDENTS



American Thought and Civilization

The American literature faculty of the English department administers two inter-
departmental degree-granting programs:

Ph.D. of Arts with a major in American Thought and Civilization (Field of Study).—
See page 88.

*Master of Arts in the field of American Literature and Cultural History.—*See page 88.

The faculty responsible for the above programs also administers one special course:

(5) *American Civilization* (2) Walker and Staff
Lecture (1 hour), discussion (1 hour). This is a University-sponsored course designed
to offer all students, toward the end of their freshman or first assessment of the cul-
ture in which they are to live and to work. Contemporary problems and characteristics
of American society are presented against the background of the humanities and social
sciences. Each lecture is delivered by an authority on a particular subject: political,
social, and economic problems; international problems; important trends in literature,
art, the arts, religion, and philosophy. Department sections will combine lecture
sessions with assigned readings in order to achieve an integrated sense of the overall
life of American civilization. Prerequisite: successful completion of 85 semester
hours credit. Open to graduate students, but not eligible for graduate credit. Rec-
ommended as an elective, but not to be taken as part of any major program without
specific departmental approval. (Fall and spring—day and evening.)

Anatomy*

Professors I. R. Telford (Chairman), Fred Calabrese,
Associate Professors F. D. Allan, T. N. Johnson,
Assistant Professors J. B. Christensen, J. C. Bartone

*Master of Science in the field of Anatomy.—*Prerequisite: a Bachelor of Arts or Bache-
lor of Science degree from this University, or the equivalent, with a major in Biology,
Chemistry, or Zoology. The undergraduate program must include the following courses or
the equivalent: Biology 1-2, Chemistry 11-12, 31, 32, 33, 34, Physics 1-2 or former 11, 12,
Zoology 103-4, Biochemistry 221-22 is recommended as an elective.

Required: the general experiments, course 28, 29-30, including Anatomy 201, 204, 205,
206-22, 295-300, and graduate courses in histology, physiology, or related fields
suggested with the approval of the Department. It is not always possible to arrange courses
and research so that the student can be assured of completing all the required work in
one academic year.

*Doctor of Philosophy.—*See the Graduate Council Catalogue.

*The Staff of Instruction is for the academic year 1963-64.

201 Gross Anatomy (8)

Regional dissection of the human body, supplemented with lectures and quiz sections. Study of X-ray anatomy to emphasize the functional aspects of the position, shape, and relation of the viscera and skeletal components. Laboratory fee, \$30. (Fall—as arranged.) **Calabrisi and Staff**

203 Human Embryology (2)

The origin and development of the human body. Special emphasis on the value of embryology in interpreting anatomical anomalies and variations as seen on gross dissection, surgery, obstetrics, and pathology. (Fall—as arranged.) **Allan and Staff**

204 Neuroanatomy (2)

The macroscopic and microscopic study of the central nervous system and the special sense organs. Emphasis on such dynamic aspects as development, pathways, lesions, etc. Laboratory fee, \$13. (Fall—as arranged.) **Johnson and Staff**

205 Microscopic Anatomy (3)

Study of the detailed minute structure of cells, tissues, and organs of the human body with emphasis on the relation of structure to function. Recognition and interpretation of histological sections tested by practical examinations. Laboratory fee, \$13. (Fall—as arranged.) **Telford and Staff**

221-22 Seminar (1-1)

Research reports and discussions of special topics by the Staff and graduate students. For graduate students. Medical students are encouraged to attend. (Academic year: 1 hour a week—as arranged.) **Telford and Staff**

249-50 Introduction to Medical Research* (3-3)

Primarily for graduate students. A comprehensive introduction to the major medical research techniques—statistical, statistical, physical, chemical, electrical, and radiologic topics—as applied to biological materials in the medical sciences. Laboratory fee, \$7.50 a semester. (Academic year—W 1-5 pm.) **The Staff**

295-96 Research (arr.)

Fee to be arranged. (Academic year—as arranged.) **The Staff**

299-300 Thesis (3-3)

Art †

Professors D. C. Kline (Chairman), W. A. MacDonald

Professorial Lecturer Grace Evans

Associate Professor L. P. Leite

Associate Professorial Lecturer Robert Parris

Assistant Professors George Steiner, E. E. Harrison, D. H. Teller

Studio Lecturer Jacqueline Meyer

Studio Lecturers on the Staff of the Corcoran School of Art Edmund Anden, Howard Warnerke, Jack Perlman, Alexander Russo, Richard Lufkin, John Riddle, Joseph Toney, Don Turano, Chiford Chieffo, Albert Davis, Paul Hoffmaster, Francis Lazzatto.

* This is an interdepartmental course. The student should register in the department directing his study.

† The Staff of Instruction is for the academic year 1963-64.

Radio Lecturers in Applied Music. R. H. Harrison, Norman Scribner, John Stephens, Margaret Tolson, Jule Zahawa, Mary Beardsley, Marian Burke, Melissa Graybeal, Lynn Klackon, Mark Thomas.

Bachelor of Arts with a major in: (1) *Art History and Theory*, (2) *Drawing and Painting*, (3) *Sculpture*, (4) *Advertising Design*, or (5) *Ceramics (Departmental)*.

The major in Art History and Theory.—Prerequisite: the Arts and Letters curriculum, page 14, or the equivalent, including Art 31-32 and 71-72.

Required, in addition to the general requirements, pages 20-22, 24-25, eighteen semester hours, as follows: Art 101 or 112, 103, 104 or 105, 110, 112, 113 or 114; and twelve semester hours selected from second group courses, or from third group courses open to undergraduates with the approval of the instructor. Students intending to major in this field are urged to acquire a working knowledge of a foreign language, preferably French or German, at the earliest possible convenience.

American Thought and Civilization 101 *American Civilization* is recommended as a senior year elective for Art majors.

The major in Drawing and Painting, Sculpture, Advertising Design, or Ceramics.

Required, in addition to the general requirements, pages 20-22, 24-25, twenty-four semester hours of studio practical, six hours of art history selected from second group courses or from third group courses open to undergraduates with the approval of the instructor.

The major in Drawing and Painting or Sculpture.—Prerequisite: the Arts and Letters curriculum, page 14, or the equivalent, including Art 21-22, 31-32 or 71-72, and six hours selected from the following: Art 35-36, 41-42, 51-52, 57-58, 65-66, or 81-82.

The major in Advertising Design.—Prerequisite: the Arts and Letters curriculum, page 14, or the equivalent, including Art 31-32, 51-52 or 71-72, and 47-42.

The major in Ceramics.—Prerequisite: the Arts and Letters curriculum, page 14, or the equivalent, including Art 21-22, 31-32 or 71-72, and 57-52.

Courses in the practice of art with the exception of Art 31-32, 57-58, 121-22, 123-24, and 133-44 are held at the Corcoran School of Art.

Bachelor of Arts with a major in: (1) *Music History and Literature*, (2) *Music Theory*, or (3) *Applied Music (Departmental)*.—Prerequisite: the Arts and Letters curriculum, page 14, or the equivalent, including Music 5-6.

Required, in addition to the general requirements, pages 20-22, 24-25, Music 103-4 and 105-6; a minimum of four semesters in Music Ensemble groups (for evidence of experience); twenty-four semester hours of second group courses as follows:

1. For the major in *Music History and Literature*.—Fifteen semester hours of Music History and Literature courses, six hours of Applied Music, and Music 145 or 157.

2. For the major in *Music Theory*.—Twelve semester hours of Music Theory courses, six hours of Music History and Literature courses, and six hours of piano (other instrument or voice if departmental requirements for proficiency in piano are met).

3. For the major in *Applied Music*.—Twelve semester hours of Applied Music in field specialization and participation in senior practical, six hours of Music Theory courses, and six hours of Music History and Literature courses.

American Thought and Civilization 101 *American Civilization* is recommended as a senior year elective for Music majors.

Master of Arts in the field of Art History and Criticism, with concentrations in Classical Art and Archaeology, Art of the American Renaissance and Baroque Art, and Contemporary Art.—Prerequisite: the degree of Bachelor of Arts with a major in Art History and Theory at this University, or the equivalent.

Required: the general requirements, pages 27-28, 29-30. As much as possible of the required semester hours in course work should be in candidacy courses. A general written examination on the problems in the field of Art History and Criticism, a written thesis embodying the results of research on some specific topic in the history and criticism of art.

Master of Fine Arts in the field of Painting, Sculpture, or Ceramics.—Prerequisite: the degree of Bachelor of Arts with a major in Drawing and Painting, Sculpture, or Advertising Design at this University, or the equivalent.

Required: the general requirements, pages 28-30. As much as possible of the twenty-four semester hours in course work should be in third-group courses. A creative thesis in painting or sculpture; a paper discussing some technical phase of the problem illustrated by the thesis.

Bachelor of Arts in Education with a teaching field in Art (School of Education) requires the Education curriculum, page 16.

Required: the Art option and professional courses listed in the School of Education Catalogue.

ART HISTORY AND THEORY

FIRST GROUP

1 *Art Appreciation* (3)

The language and function of art in its various media; the historical development of styles, aesthetic principles, theories, and the ideas in art through the ages. Primarily for nonmajors. (Fall and spring—day and evening; summer 1964.)

MacDonald and Staff

31-32 *Survey of Western Art* (3-3)

A survey of the arts in the Western World from prehistoric to modern times. A foundation for further study in the history of art. (Academic year—day and evening.)

Leite and Staff

71-72 *Introduction to the Arts in America* (3-3)

Painting, sculpture, and architecture of America, with selected references to the crafts and popular arts. First half from Colonial beginnings to the Republican Age. Second half from early 19th century to the present. (Academic year—day, summer 1964—Art 71 (3).)

Kline

SECOND GROUP

101 *Greek and Roman Architecture* (3)

(Fall—day.)

MacDonald

102 *Greek and Roman Sculpture* (3)

(Spring—day.)

MacDonald

103 *Medieval Art* (3)

Architecture, sculpture, and painting from the formative stages of Christian Art in the Byzantine Age through the Romanesque and Gothic periods. (Fall—day.)

Evans

104 *Renaissance Art in Italy I* (3)

The early developments from the 13th to the 15th century. (Fall—evening.)

Leite

105 *Renaissance Art in Italy II* (3)

The High Renaissance and Mannerism. (Spring—evening.)

Leite

106 *Renaissance Art in the North* (3)

The painting in the Netherlands, Germany, France, Spain, and Portugal. (Fall—day.)

Evans

107 *Eighteenth Century Art in Europe* (3)

The development of painting, sculpture, and architecture in 18th century Europe. (Spring—day; summer 1964.)

Leite

109 *Nineteenth Century Art in Europe* (3)

Painting and sculpture from Academicism to Symbolism. (Summer—1964.)

Leite

110 *Contemporary Art* (3)

Painting and sculpture in 20th century Europe. (Spring—day; summer 1964.)

MacDonald

111 *Classical Archaeology* (3)

Archaeological monuments of classical civilizations, with intensive study of one or more areas selected from architecture, sculpture, painting, or minor arts. (Summer 1964.)

MacDonald

- 112 *Art of Egypt and the Ancient Orient* (3)
A study of the art of Mesopotamia, Anatolia, Egypt, and Persia. (Spring—day.) MacDonald
- 113 *Baroque Art in Italy* (3)
The development of painting, sculpture, and architecture in the 16th and 17th centuries in Italy. (Fall—evening.) Evans
- 114 *Baroque Art in the North* (3)
The development of painting, sculpture, and architecture in the 16th and 17th centuries in Holland, Flanders, Spain, France, Germany, and England. (Spring—evening.) Evans
- 115 *Christian Iconography* (3)
The origin and development of Christian symbols and themes from Early Christian to modern times. (Spring—day.) Leite
- 116 *Classical Iconography* (3)
The origin and development of myths in classical art. (Fall—day.) MacDonald
- 120 *Art of China and Japan* (3)
The architecture, painting, and sculpture of China, Korea, and Japan. (Spring—day.) Kline
- 141 *Interior Decoration* (4)
Lecture (2 hours), laboratory (3 hours). The principles of decorating, dealing with furniture designs and ensemble layout, draperies, color, accessories, and lighting. Students fee, \$5. (Fall—day.) Kline and Staff
- 142 *House Planning* (3)
The contemporary house for family living, including site problems, the case plan, materials of building, and climate conditioning. (Spring—day.) Kline
- 143 *Folk Arts in America* (3)
Ceramics, woodcarving, ironwork, decorative painting, weaving, and other crafts; selected references to American folk music. (Not offered 1964-65.) Kline

THIRD GROUP

- 203 *Primitive Art** (3)
The arts of prehistoric and primitive man in Europe in the pre-Columbian Americas, Oceania, and Africa. (Fall—day.) Kline
- 207 *Modern Architecture* (3)
The development of modern architecture and building technology in Europe and America from the late 19th century to the present. (Summer 1964.) Kline
- 243 *Seminar in American Art* (3)
(Not offered 1964-65.) Kline
- 244 *Seminar in Naturalism and Realism* (3)
A reading knowledge of French is desirable. (Not offered 1964-65.) Leite
- 245 *Seminar in Romanticism* (3)
A reading knowledge of French and German is desirable. (Not offered 1964-65.) Leite
- 246 *Seminar in Classical Art* (3)
(Fall—evening; summer 1964.) MacDonald
- 247 *Seminar in Symbolism* (3)
(Fall—day.) Leite
- 248 *Studies in Classical Art* (3)
(Spring—day.) MacDonald

*May be taken for undergraduate credit with the approval of the instructor.

261 *Art Theory and Criticism* (3)

History of theory and criticism with areas of concentration selected from Classical, Medieval, Renaissance, and Modern fields. (Fall—day; summer 1964.)

The Staff
The Staff

289-90 *Thesis* (2-3)

* Academic year—as arranged; summer 1964.)

DRAWING AND PAINTING, SCULPTURE, ADVERTISING DESIGN, AND CERAMICS

FIRST GROUP

21-22 *Basic Design** (3-3)

The fundamentals of two- and three-dimensional design. (Academic year—day and evening; summer 1964.)

Teller and Staff
(Academic year—day and evening)

35-36 *Advertising Design I* (3-3)

Fundamentals of advertising and editorial layout. (Academic year—day and evening; summer 1964.)

Taney and Staff
(Academic year—day and evening)

41-42 *Drawing and Perspective* (3-3)

An introductory course in object and figure drawing and mechanical perspective. (Academic year—day and evening; summer 1964—Art 41 (3).)

Russo

51-52 *Ceramics I* (3-3)

Basic techniques for clay preparation, hand forming, wheel throwing, and the application of slip glazes and vitreous glazes through workshop and illustrated lectures. Material fee, \$25 a semester. (Academic year—day and evening; summer 1964.)

Lafean, Hunt

57-58 *Introduction to Graphic Techniques* (3-3)

Exploration of the methods of intaglio, relief, serigraphy, and other composite methods. Studio fee, \$10 a semester. (Academic year—day and evening; summer 1964—Art 57 (3).)

Meyer

65-66 *Drawing and Painting I—Life, Still Life, and Portrait* (3-3)

Primarily for nonmajors. (Academic year—day; summer 1964—Art 65 (3).)

The Staff
Warneke, Turano
(Academic year—day and evening; summer 1964.)

81-82 *Sculpture I* (3-3)

Material fee, \$10 a semester.

SECOND GROUP†

131-132 *Advanced Design* (6-6)

An advanced study in organic and stereometric design with special emphasis on the use of materials and their appropriate application to the problem. Studio fee, \$10 a semester. (Academic year—day and evening.)

Teller and Staff

123-24 *Design Workshop* (3-3)

Exploration of design possibilities in wood, metal, textile, plastics, and other materials with special emphasis on problems for teachers in the field. Studio fee, \$10 a semester. (Summer 1964.)

Teller

The Staff

125-26 *Drawing and Painting II—Life, Still Life, and Portrait* (6-6)

(Academic year—day; summer 1964.)

* Art 21-22 is prerequisite to all other studio courses.

† Material fees for courses in ceramics and sculpture are to be paid at the Corcoran School of Art.

‡ All second-semester courses may be repeated for credit with the approval of the Department.

127.35 *Drawing and Painting III—Life and Portraiture* (6-6) The Staff
Academic year—day and evening

127.36 *Ceramics II* (6-6) Lafcan
Basic techniques in clay and glaze formation, advanced wheel throwing and hand forming, mosaic. Practical experience in display. Individual subjects in a choice of sculpture and experimentation in the possibilities and limitations of the medium. Includes firing, costume design, different directions of the studio pottery, research in studio procedures and equipment. Material fee, \$30 a semester. (Academic year—day and evening; summer 1964—Art 181 (3).)

127.41 *Scenography* (3-3) Fuller
Advanced problems in scenography with emphasis on its aesthetic possibilities. Studio fee, \$10 a semester. Prerequisite: Art 57.59. (Academic year—day)

127.52 *Ceramics III* (6-6) Lafcan
Advanced glaze calculation, experimentation in reduction firing. Individual problems in function, technique, and problems in water projection for the studio artist. Advanced decorating and finishing techniques. Studio working techniques and marketing procedures. Material fee, \$30 a semester. (Academic year—day and evening; summer 1964—Art 171 (3).)

127.53 *Printmaking* (6-6) Perlmutter
Relief printing and wood block, with special reference to western and eastern techniques. (Academic year—day)

127.61 *Anatomy and Technique* (6-6) Russo
Special problems in anatomy and drawing and painting of the life model in action. Academic year—day

127.62 *Workshop in Ceramics* (3-3) Lafcan and Staff
Practical use of ceramic equipment, study of ceramic materials, class projects for varying projects. Material fee, \$25. (Summer 1964)

127.71 *Home Design and Composition* (6-6) Rydley
Advanced problems in creative design and composition. (Academic year—day and evening; summer 1964—Art 175 (1).)

127.81 *Sculpture II* (6-6) Wernicke, Petersen
Practical modeling and construction in clay, plaster and wood carving. Material fee, \$10 a semester. (Academic year—day and evening; summer 1964—Art 129 (3).)

127.91 *Advertising Design II* (6-6) Tanczy and Staff
Problems in the production of advertising material, posters, magazines, pamphlets, etc. (Academic year—day and evening)

127.92 *Advertising Design III* (6-6) Tanczy and Staff
Advanced problems and techniques in supervision and production of various commercial projects. (Academic year—day and evening)

127.93 *Sculpture III* (6-6) Wernicke
Advanced problems in modeling and direct carving. Prerequisite: 10 semester hours of sculpture. Material fee, \$10 a semester. (Academic year—day and evening; summer 1964—Art 129 (3), Art 129 (1).)

THIRD GROUP

127.94 *Ceramics III* (6-6) Lafcan and Staff
Material fee, \$30 a semester. (Academic year—day and evening; summer 1964—)

Material fees for courses in ceramics and sculpture are to be paid at the Ceramic School of Art. The following charges may be levied for studio work not included in the Department.

- 253 *Ceramics I* (6)
Material fee*, \$30. (Fall and spring—day and evening; summer 1964—Art 253 (3).) Lafean and Staff
- 265-66 *Painting II* (6-6)
(Academic year—day and evening; summer 1964—Art 265 (3), Art 266 (3).) The Staff
- 271 *Painting I* (6)
(Fall and spring—as arranged; summer 1964—Art 275 (3).) The Staff
- 279-80 *Sculpture I* (6-6)
Material fee*, \$10 a semester. (Academic year—as arranged; summer 1964—Art 279 (3).) Warneke, Turano
- 281 *Sculpture I* (6)
Material fee*, \$10. (Fall and spring—as arranged; summer 1964—Art 281 (3).) Warneke
- 299-300 *Thesis* (3-3)
(Academic year—as arranged; summer 1964.) The Staff

MUSIC HISTORY AND LITERATURE AND MUSIC THEORY

FIRST GROUP

- 3 *Introduction to Music* (3)
An introduction to the historical sequences of musical style, the elements of music, and the media of musical presentation. (Fall—day and evening; summer 1964.) Steiner, Harrison
- 4 *Survey of Music Literature and Forms* (3)
General study of musical forms, structures, and textures as well as the works of the principal composers. (Spring—day and evening; summer 1964.) Steiner, Harrison
- 5-6 *Music Theory* (3-3)
Lecture (3 hours), laboratory (1 hour). Fundamentals of music—ear training, sight singing, notation, melody and harmonic notation; principles and practical use of the elements of music, including scales, keys, intervals, triads, chords, cadences, and basic harmonic contrapuntal practice. (Academic year—day.) Harrison

SECOND GROUP

- 102-4 *History of Music* (3-3)
The development of music in the Western World from the early Christian Era to the present. (Academic year—day; summer 1964.) Steiner
- 105 *Music of the Baroque Period* (3)
Study of the musical styles, techniques, and literature from 1600 to 1750. (Fall—day.) Harrison
- 106 *Music of the Classic Period* (3)
Study of styles, techniques, and literature from the 18th century schools in Italy, Haydn, Mozart, and Beethoven. (Spring—day.) Harrison
- 107 *Music of the Romantic Period* (3)
(Not offered 1964-65.) Steiner
- 109 *Orchestra Literature* (3)
Survey of the history and styles of orchestra literature; analysis of representative works. (Fall—day.) Steiner
- 110 *Chamber Music Literature* (3)
Survey of the history and styles of chamber music literature; analysis of representative works. (Spring—day.) Steiner

* Material fees for courses in ceramics and sculpture are to be paid at the Carrigan School of Art.

- 12] *The Opera* (1)
Survey of the history and styles of opera; analysis of representative works. (Fall—day.) Harrison
- 13] *Advanced Music Theory* (1, 2)
Progress in harmonic writing, figured and numbered bass, secondary and altered chords, independent tones and extended modulations. Prerequisite: Music 5, 6 or the equivalent. (Academic year—day.) Parris
- 14] *Counterpoint* (1)
Solo counterpoint up to four parts. Techniques of small contrapuntal forms. (Spring—existing.) Parris
- 15] *Orchestration* (2)
Instrumental orchestral scoring. (Fall—existing.) Parris
- 16] *Form and Analysis* (3)
Analysis of musical forms in representative musical literature. (Spring—day.) Harrison

APPLIED MUSIC

1] Applied Music curriculum may be repeated for credit.

FIRST GROUP

- 1] *Piano* (1)
Instrument lesson (1½ hours), required practice (3 hours). Study fee, \$40. (Fall—spring—as arranged; summer 1964.) Tolson, Parris, Burke
- 2] *Piano* (2)
Instrument lesson (1 hour), required practice (6 hours). Study fee, \$80. (Fall—spring—as arranged.) Tolson, Parris, Burke
- 3] *Piano* (1)
Instrument lesson (1½ hours), required practice (3 hours). Study fee, \$40. (Fall—spring—as arranged; summer 1964.) Tolson
- 4] *Piano* (1)
Instrument lesson (1 hour), required practice (6 hours). Study fee, \$40. (Fall—spring—as arranged.) Tolson
- 5] *Organ* (1)
Instrument lesson (1½ hours), required practice (3 hours). Study fee, \$40. (Fall—spring—as arranged; summer 1964.) Scribner
- 6] *Organ* (2)
Instrument lesson (1 hour), required practice (6 hours). Study fee, \$80. (Fall—spring—as arranged.) Scribner
- 7] *Orchestral Instrument* (1)
Instrument lesson (1½ hours), required practice (3 hours). Study fee, \$40. (Fall—spring—as arranged; summer 1964.) The Staff
- 8] *Orchestral Instrument* (2)
Instrument lesson (1 hour), required practice (6 hours). Study fee, \$80. (Fall—spring—as arranged.) The Staff
- 9] *Orchestra* (1)
Preparation and performance of orchestral literature. Prerequisite: music theory before. (Fall and spring—existing.) Spitzer
- 10] *Chorus* (1)
Preparation and performance of choral literature. Prerequisite: music theory before. (Fall and spring—existing.) Harrison

SECOND GROUP

Before admission to second group courses in Applied Music, the student must demonstrate, in addition, that he meets departmental requirements. The studio fee is waived for full-time music majors.

111 *Piano* (1)

Individual lesson (1/2 hour), required practice (5 hours);

Folsom, Parson
Studio fee, \$40. (Fall)

112 *Piano* (3)

Individual lesson (1 hour), required practice (10 hours);

Tolson, Parson
For music majors only. See

Studio fee, \$120. (Fall and spring—as arranged)

113 *Piano* (1)

Individual lesson (1/2 hour), required practice (5 hours);

Studio fee, \$40

and spring—as arranged; summer 1964.)

114 *Piano* (3)

Individual lesson (1 hour), required practice (10 hours);

For music majors only

Studio fee, \$120. (Fall and spring—as arranged)

115 *Organ* (1)

Individual lesson (1/2 hour), required practice (5 hours);

Studio fee, \$40

and spring—as arranged; summer 1964.)

116 *Organ* (3)

Individual lesson (1 hour), required practice (10 hours);

For music majors only

Studio fee, \$120. (Fall and spring—as arranged.)

117 *Orchestral Instrument* (1)

Individual lesson (1/2 hour), required practice (5 hours);

Studio fee, \$40

and spring—as arranged; summer 1964.)

118 *Orchestral Instrument* (3)

Individual lesson (1 hour), required practice (10 hours);

For music majors only

Studio fee, \$120. (Fall and spring—as arranged.)

Biochemistry*

Professors J. H. Roe (Emeritus), C. R. Treadwell (Chairman)

Professorial Lecturers W. R. Carroll, Arthur Weissbach, Leon Swell, Sidney Uden

Instructor C. A. Kautler, W. W. Burr, Herbert Weissbach, Walter Mertz

Associate Professors B. W. Smith, G. V. Vahouny, J. M. Bailey

Assistant Professor A. R. Treadwell

Master of Arts or Master of Science in the field of Biochemistry.—Prerequisite: a Bachelor of Arts or a Bachelor of Science degree. The undergraduate program must have included the following courses, or the equivalent: Biology 1-2; Chemistry 11-12, 21, 22, 151-22, Physics 1-2 or 11 and 12.

Required, the general requirements, pages 2-30, including Biochemistry 221-22, 227, 228, 242-30, 299-300. The remaining courses are to be selected from Biochemistry 224, 242.

* The Staff of Instruction is for the academic year 1963-64.

30, 31, 361, 395-96, or, with the approval of the adviser, from graduate courses in Microbiology, Chemistry, Physiology, or Pharmacology. It is usually not possible to arrange lecture and research so that the student can be assured of completing all of the required work in one academic year.

Data of Physiology—See the Graduate Council Catalogue.

21-22 *General biochemistry* (4-4)

Vahouny

Lecture and laboratory course for nonmedical students. Prerequisite: Chemistry 152. Material fee, \$15 a semester. (Academic year—TTh 8-12 noon.)

23 *Biochemistry of the Enzymes* (1)

A Weissbach

Lecture course dealing with the biochemistry of the enzymes and enzyme reactions. Prerequisite: Biochemistry 113 or 221. (1964-65 and alternate years—spring—Th 1 pm.)

25-26 *Biochemical Principles* (3-3)

Smith and Staff

Laboratory course. Material fee, \$16 a semester. (Academic year—as arranged.)

27-28 *Biochemistry Seminars* (1-1)

The Staff

The current literature in the field of biochemistry, notably for graduate students, but open to a limited number of specially qualified medical students. (First half) F 4-6 pm. (Second half) F 4 pm.)

29 *Proteins and Amino Acids* (1)

Carroll

Lecture course. Prerequisite: Biochemistry 113 or 221. (Spring—W 5 pm.)

30 *Isotopes* (2)

Hart

Practical characterization of isotopes and their applications to biology. Attention will be given to counting, health physics and radiation safety, autoradiography and cinematography. (Spring—S 8 am.)

31-32 *Introduction to Medical Research** (3-3)

Bailey

Primary for graduate students. A comprehensive introduction to the major medical research techniques—anatomical, statistical, physiology, chemical, electrical, and radiological—as applied to biological materials in the medical sciences. Laboratory fee, \$10 a semester. (Academic year—W 1-3 pm.)

33 *Carbohydrate Metabolism* (1)

A Weissbach

Lecture course. Prerequisite: Biochemistry 114 or 221. (1965-66 and alternate years—spring—Th 5 pm.)

34 *Biochemistry of the Lipids* (1)

Swell, Treadwell

Lecture course. Prerequisite: Biochemistry 114 or 221. (Spring—S 12 noon.)

35 *Research in Biochemistry* (var.)

The Staff

Academic year—as arranged.

36-38 *Thesis* (3-3)

The Staff

*This is an interdepartmental course. The student should register in the department offering the course.

Botany*

Professor R. B. Stearns (Chairman), R. L. Whittaker

Professorial Lecturer L. R. Smith

Associate Professor J. M. Rains (Research), Caroline Adams

Assistant Professorial Lecturers: Kline Parker, W. S. Squires, Edward Haskaya, R. M. Cahoon, E. N. Stewart

Lecturer N. A. Shoupshire, Jr., M. M. Macgregor

Bachelor of Arts or Bachelor of Science with a major in Botany (Departmental).—Prerequisite: the Arts and Letters or the Science curriculum, respectively, pages 14-15, including Biology 1-2, or the equivalent.

Required: in addition to the general requirements, pages 20-22, 23, 24-25, a minimum of twenty-four semester hours of sound group courses in Botany or in a combination of Botany and related sciences as approved by the Chairman.

Bachelor of Arts or Bachelor of Science with a major in Botany (Departmental).—This interdepartmental major may be arranged in conjunction with the Department of Zoology, Premedicine, the Arts and Letters or the Science curriculum, respectively, pages 14-15, including Biology 1-2, or the equivalent.

Required: in addition to the general requirements, pages 20-22, 23, 24-25, a minimum of twenty-four semester hours of sound group courses which should include at least six hours in Botany, six in Zoology, and six in interdepartmental courses.

Master of Arts or Master of Science in the field of Botany.—Prerequisite: the equivalent of a Bachelor of Arts or Bachelor of Science degree, respectively, from this University with a major in Botany or Biology.

Required: the general requirements, pages 27-30.

Master of Arts or Master of Science in the field of Biology.—This interdepartmental field may be arranged in conjunction with the Department of Zoology. Prerequisite: the equivalent of a Bachelor of Arts or Bachelor of Science degree, respectively, from this University with a major in Botany, Zoology, or Biology.

Required: the general requirements, pages 27-30, which should include at least six hours in Botany, six in Zoology, and six in interdepartmental courses.

Doctor of Philosophy (in a field of Botany or Biology).—See the Graduate Council Catalogue.

Bachelor of Arts in Education with a teaching field in Botany.—Prerequisite: the Education curriculum, page 16.

Required: the Biology option and the professional courses listed in the School of Education Catalogue.

BIOLOGY

FIRST GROUP†

The Staff

1-2 *Introductory Biology*† (4-4)

An interdepartmental course. Lecture (4 hours), laboratory (4 hours). This course is designed to provide the non-science student with an understanding of the life sciences.

* The field of botany is for the student who wishes to study the life sciences.

† Biology 1-2 is prerequisite to all premedical courses in Botany, except by permission of the faculty.

to serve as a basis for those who wish to continue in some aspect of biology. It is the introductory course leading to all graduate and third-group courses in botany and zoology, and is taught jointly by the staff members of the two departments. Designed to be taken in either sequence, students may be registered for either 1 or 2 at the beginning of the academic year, depending on laboratory space available. Material fee, \$2.00 a semester. *Biology 1—Plant Science* (4) fall and spring—day and evening; summer 1964. *Biology 2—Animal Science* (4) fall and spring—day and evening; summer 1964.

BOTANY

SECOND GROUP*

1. Field Botany—Lower Plants (3)
Lecture (1 hour), laboratory and field (4 hours). A course, primarily for nonmajors, emphasizing algae, mosses, and ferns. (1964 and alternate summers.)
Adams

2. Field Botany—Seed Plants (3)
Lecture (1 hour), laboratory and field (4 hours). A course, primarily for nonmajors, emphasizing local flora. (1965 and alternate summers.)
Parker

3. Organic Evolution (3)
Themes of organic evolution and present ideas on the principal lines of development in the plant and animal kingdoms; review of the contributions to an understanding of the mechanisms involved in this process. (1964-65) spring—evening; 1965-66) spring—day.
Munson

4. Plant Morphology (3-4)
Lecture (2 hours), laboratory (2 hours). Material fee, \$2 a semester. (1965-66) alternate years.
Adams

5. Plant Microtechnique (3)
Lecture (1 hour), laboratory (4 hours). An introduction to techniques and principles involved in the preparation of botanical materials for morphological examination. Material fee, \$10. (1964-65 and alternate years) fall—day.
Adams

6. Cytology (3-4)
Lecture (1 hour), laboratory (4 hours). The morphological and physiological properties of plant and animal cells and their components. Preparation of material for micrographs. Prerequisite: one year of chemistry and two years of biological sciences. Material fee, \$11 a semester. (Alternate years—day.)
Adams

7. Plant Taxonomy (3-4)
Lecture (1 hour), laboratory and field (4 hours). (1965-66 and alternate years.)
Parker

8. Genetics (3)
A course in which the general principles are illustrated with specific examples of inheritance in plants and animals, including man. (Fall—evening; 1964 and alternate summers.)
Stewart

9. Mycology (3-4)
Lecture (1 hour), laboratory (4 hours). Material fee, \$2 a semester. (1964-65) alternate years; alternate years—evening.
Stewart

10. Plant Pathology (3-4)
Lecture (1 hour), laboratory (4 hours). Material fee, \$2 a semester. (1965-66) alternate years.
Stewart

11. Plant Physiology (3-4)
Lecture (1 hour), laboratory (4 hours). Material fee, \$2 a semester. (1965-66) alternate years.
Stewart

12. Plant Systematics (3-4)
Lecture (1 hour), laboratory (4 hours). Material fee, \$2 a semester. (1965-66) alternate years.
Stewart

- 135-36 *Plant Physiology* (3-3)
Lecture (2 hours), laboratory (2 hours). Prerequisite: Chemistry 11-12 or permission of the instructor. Material fee, \$8 a semester. 1964-65 and alternate years: **Weintraub, Cathy**
(evening year.)
- 139-40 *Cell Physiology** (3-3)
The fundamental physiology of protoplasm. Prerequisite: Chemistry 12. 1966 and alternate years: **Shropshire, Weintraub**
(Academic)
- 141-42 *Plant Ecology* (2-3)
Lecture (1 hour), laboratory and field (4 hours). 1964-65 and alternate years: **Sigafos**
(evening year.)

THIRD GROUP

- | | | |
|---------|---|--------------------|
| 201-2 | <i>Seminar: Cytology</i> (2-3) | (Academic year—on) |
| | A study in the current literature in experimental cytology. | |
| | 1964-65 | Smith, Parker |
| 221 | <i>Seminar: Plant Taxonomy</i> (1) | Stevens |
| | (1964-65 and alternate years—fall—evening) | |
| 232 | <i>Seminar: Mycology and Plant Pathology</i> (1) | Weintraub, Cathy |
| | (1964-65 and alternate years—spring—evening) | |
| 245 | <i>Seminar: Plant Physiology</i> (1) | Sigafos |
| | (1965-66 and alternate years) | |
| 242 | <i>Seminar: Plant Ecology</i> (1) | Kaper |
| | (1965-66 and alternate years) | |
| 252 | <i>Seminar: Plant Ecology</i> (2) | The Staff |
| | (1965-66 and alternate years) | |
| 295-96 | <i>Research (Arr.)</i> | The Staff |
| | Fee to be arranged. (Academic year—on arranged; summer 1964.) | |
| 299-300 | <i>Thesis</i> (3-7) | |
| | (Academic year—on arranged); summer, 1964 | |

Chemistry[†]

Physicians: B. D. Van Fleet, S. A. Wright, C. R. Naeser (Chairman), R. C. Vincent,
W. E. Sargent, R. E. Wood, I. F. Peters, G. E. Schmidt, D. G. White, J. W. Harkness
Assistant Professors: R. C. Seagr, Margaret Fiksen, L. H. Eargle, Nicolae Filipescu

Registration. Before completing registration each student must submit a copy of the Department's program to a faculty member approved by the Department. The work of the student each semester must be approved by the Department.

Prerequisite of Study in Biochemistry. Students with a major in Chemistry (Department) or Physics and Astronomy may register for Biochemistry.

* An analogous result is also affected by the assumption that $\lambda = 0$ in the second period.

The Department offers two undergraduate majors designed to give students broad training in the basic divisions of chemistry, analytical, inorganic, organic, and physical chemistry. *Major I*, although providing for considerable concentration in chemistry, permits a wider selection of electives, and thus should meet the needs of students preparing to enter medicine, dentistry, or related fields. *Major II*, is intended primarily for students preparing to earn chemistry in graduate school or those planning to enter the chemical profession and wishing to be certified to the American Chemical Society as having met the minimum requirements for professional training. Both majors require the passing of the entrance examination at the end of the second year. The uncorrelated knowledge upon which the course will be examined includes the four divisions of chemistry named above. Two foreign languages are recommended for students planning to do graduate work in chemistry. Prerequisite: the Arts and Letters or the Science curriculum, respectively, pages 14-15, including Chemistry 11-22 or 13, 14, and 22; Mathematics 22 and 23; Physics 1-2, 51-52 or 10-11, 12, 13, 16; or 11, 13, 15, and 16.

Major I—Required: the general requirements, pages 26-27, 23, 24-25, including Chemistry 11, 113, 116 (or 10-11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000.

Major II—Required: the general requirements, pages 27-28, 23, 24-25, including the German language, and mathematics in *Major I*, plus Chemistry 138 or 139 and one course chosen from the following: Chemistry 203, 213, 221, 222, 225, or 251; or Mathematics 139 or 141; or Physics 163 (optical), 167, 168, or 178. The student is encouraged to take Chemistry 24 and Physics 32-33 in preparation for advanced courses and graduate work. These courses are essential to graduate work in theoretical chemistry.

Master of Arts or Master of Science in the field of Chemistry—Prerequisite: the degree of Bachelor of Arts or Bachelor of Science, respectively, with a major in Chemistry from this University, or the equivalent.

Required: the general requirements, pages 27-28. All prospective Master's candidates must take qualifying examinations in the fields of analytical, inorganic, organic, and physical chemistry. These examinations will be given during the first week of classes each semester, and are a part of the prerequisites for all advanced courses. At least two of these examinations must be taken at the beginning of the first year of registration and the remaining one(s) must be taken at the beginning of the second year. Deficiency, if any, shall be eliminated by assignment to appropriate courses in the 100 group for which a limited amount of graduate credit may, upon petition, be assigned for courses normally taken by seniors. The thirty hours of required work must include Chemistry 213 and at least one three semester hour course in the 300 group in two of the three fields of analytical, inorganic, and organic chemistry. In addition, the thirty hours must include at least four semester hours of laboratory work, Chemistry 203 and 204-206. Chemistry 116 is prerequisite to these work in the field of organic chemistry. A working knowledge of Russian in French or German (German preferred) must be passed before the second half of the work is started.

Master of Science in the field of Geochemistry (an interdisciplinary degree offered by the Departments of Chemistry and Geology)—Prerequisite: the degree of Bachelor of Arts or Bachelor of Science, respectively, with a major in Chemistry or in Geology from this University, or the equivalent. Before admission to Master's candidacy, the student with a undergraduate major in Geology must demonstrate by exam or examination a knowledge of the content of Chemistry 21, 111, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000.

Required: the general requirements, pages 28-29, including Chemistry 221; Geology 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568

FIRST GROUP

3-4 *Fundamentals of Physical Science* (4-4)

Schmidt, Ethier

A year course; credit is not given for the first half until the second half is completed. Lecture (3 hours), laboratory (3 hours). Selected topics from chemistry, physics, astronomy, and geology are integrated to introduce the non-science major to the basic scientific and technological aspects of physical science. Laboratory fee, \$11 a semester. (Academic year—day, summer 1964.)

11-12 *General Chemistry* (4-4)

The Staff

A year course; credit is not given for the first half until the second half is completed. Lecture (12 hours), laboratory (4 hours), recitation (1 hour). Elementary course in general chemistry. Prerequisite: one year of high school algebra. Laboratory fee, \$18 a semester. (Fall—half; fall—day and evening; summer 1964. Second half: spring—day and evening, summer 1964.)

13-14 *General Chemistry* (4-4)

White

A year course; credit is not given for the first half until the second half is completed. Lecture (12 hours), laboratory (4 hours), recitation (1 hour). A terminal course in general chemistry for students in the School of Engineering and Applied Science. Prerequisite: Physics 12; Mathematics 21 or 27. Laboratory fee, \$18 a semester. (Academic year—day and evening.)

15 *General Chemistry (Accelerated)* (4)

Nasser

Lecture (3 hours), laboratory (3 hours), recitation (1 hour). An intensive one-semester course in general chemistry. Prerequisite: high school chemistry accompanied by laboratory work and a satisfactory grade on either the College Entrance Examination Board Achievement Test in Chemistry or on the placement examination given by the Department of Chemistry prior to registration, and high school physics. Laboratory fee, \$18. (Fall—day.)

21 *Qualitative Inorganic Analysis* (4)

Vincent

Lecture (2 hours), laboratory (6 hours). Theoretical and practical study of methods of separating and identifying the more common cations and anions using semi-micro techniques. Prerequisite: Chemistry 12 or 15, or a placement examination which may be waived at the discretion of the instructor. Laboratory fee, \$18. (Fall—day and evening; spring—day; summer 1964.)

22 *Elementary Quantitative Analysis* (4)

Schmidt

Lecture (2 hours), laboratory (6 hours). Theory and practice of quantitative analysis by classical volumetric and gravimetric methods and introduction to instrumental analysis. Prerequisite: Chemistry 21. Laboratory fee, \$18. (Fall—day; spring—day and evening, summer 1964.)

SECOND GROUP

111 *Physical Chemistry* (3)

Gas Laws, chemical thermodynamics, solution chemistry, chemical equilibria, and other topics are introduced. Prerequisite: Chemistry 22; Mathematics 22; Physics 1-2 or Physics 13, 14, or 15. (Fall—day and evening; summer 1964.)

112 *Physical Chemistry* (3)

Wood

Chemical kinetics, chemical statistics, electrochemistry, and other topics are introduced. Prerequisite: Chemistry 111. (Spring—day and evening.)

113 *Physical Chemistry Laboratory* (2)

The Staff

The laboratory complement of Chemistry 111; previous satisfactory completion of or concurrent registration for Chemistry 111 is required. Laboratory fee, \$18. (Fall—day and evening, summer 1964.)

116 *Physicochemical Measurements* (3)

The Staff

The integrated laboratory work associated with Chemistry 112 and 122; principles and applications of physicochemical methods and instruments to problems in chemical

- thermodynamics and kinetics and in structural and analytical chemistry. Prerequisite: Chemistry 111, 113. Prerequisite or concurrent registration: Chemistry 112, 122. Laboratory fee, \$18. (Spring—day and evening.)
- 122 *Instrumental Analysis Lectures* (2) Schmidt
Theory of instrumental methods in qualitative and quantitative analysis, determination of structure, and study of reaction mechanisms with emphasis on electroanalysis, spectrophotometry, and chromatography. Correlated with laboratory course: Chemistry 116. Prerequisite: Chemistry 22, 111, 113. Concurrent registration: Chemistry 112, 116. (Spring—day and evening.)
- 131 *Descriptive Inorganic Chemistry* (3) Naeser
An intermediate level course emphasizing the descriptive chemistry of the elements. Prerequisite: Chemistry 22, 131, 132. (Spring—day.)
- 132-36 *Inorganic Chemistry: Preparations* (2-2) Perros
Application of the technique of inorganic chemistry to the preparation and purification of a list of selected substances. Prerequisite: Chemistry 132. Prerequisite or concurrent registration: Chemistry 134. Laboratory fee, \$18 a semester. (First half) fall—evening, spring—day. (Second half) fall—evening.
- 151-52 *Organic Chemistry* (4-3) Sente, Wrenn, Sager
A year course; credit is not given for the first half until the second half is completed. Chemistry of the compounds of carbon. Prerequisite: Chemistry 21* and high school Physics or Physics I. Laboratory fee: Chemistry 151, \$12; Chemistry 152, \$10. (First half) fall—lecture (3 hours), laboratory (3 hours), day and evening, summer 1964. (Second half) spring—lecture (3 hours), laboratory (6 hours), day and evening, summer 1964.
- 153 *Special Laboratory in Organic Chemistry* (1) Wrenn, Sager
A course designed to give the chemistry major additional and broader training in the technique of organic chemistry than is obtained in Chemistry 151-52. Prerequisite or concurrent registration: Chemistry 22, 132. Laboratory fee, \$12. (Chemistry 155 may be substituted for this course.) (Spring—day and evening.)
- 154 *Organic Chemistry: Preparations* (2 or 3) Wrenn
Synthesis of organic compounds and application of the technique of organic chemistry to the preparation of pure compounds using larger amounts and greater refinements than in Chemistry 151-52. Prerequisite: Chemistry 22, 132. Laboratory fee, \$10 (30 a semester hour. (Spring—evening.)
- 155 *Qualitative Organic Analysis* (3) Wrenn
Lecture (1 hour), laboratory (6 hours). Identification of pure organic compounds, separation of mixtures, and identification of these compounds. Required of all students pursuing thesis work in organic chemistry. Prerequisite: Chemistry 22, 132. Laboratory fee, \$18. (Fall—evening.)
- 156 *History of Chemistry* (2) Perros
Historical development of chemistry. Prerequisite: Chemistry 22, 132. (1965-66 academic years.)
- 157 *Chemical Literature* (1) Wrenn
A general course in chemical literature with reference work and reports. Prerequisite: Chemistry 22, 132. Prerequisite or concurrent registration: Chemistry 111, 112. (Fall—evening.)

THIRD GROUP

- 158 *Chemical Kinetics* (2) Wood
The rates of chemical reactions and the factors influencing them. Prerequisite: Chemistry 111. (1965-66 and alternate years.)
- 159 *Chemical Thermodynamics* (2) Wood
The laws of thermodynamics and their application to chemical systems. Prerequisite: Chemistry 111. (1965-66 and alternate years.)
- 160 *Chemical Equilibrium* (2) Wood
The laws of chemical equilibrium and their application to chemical systems. Prerequisite: Chemistry 111. (1965-66 and alternate years.)

211-12 *Physical Chemistry* (2-1)

Same as Chemistry 111 and 112. Admission only by departmental permission. Credit will be assigned only upon the satisfactory completion of Chemistry 213. (Academic year—day and evening.) Wood

213 *Chemical Thermodynamics* (3)

Application of thermodynamics to chemical problems. Thermochemistry, homogeneous and heterogeneous equilibria, statistical calculation of thermodynamic properties, electrochemistry. Prerequisite: (1) grade A or B in Chemistry 111 and 112, or (2) satisfactory in Chemistry 211-12, or (3) qualifying grade in physical chemistry qualifying examination. (Fall—evening.) Wood

216 *Statistical Mechanics as Applied to Chemistry* (3)

An introduction to classical and quantum statistics designed to acquaint the student with the basic principles and application of the method. Prerequisite or concurrent registration: Chemistry 213 or permission of instructor. (1964-65 and alternate years; fall—evening.) Sager

217 *Chemical Bonding* (2)

A survey of modern developments in the theory of valence with emphasis on application to problems of stability and structure of complex molecules. Prerequisite: Chemistry 213 or permission of instructor. (1964-65 and alternate years; spring—evening.) Sager

219-20 *Spectrochemistry I-II* (3-3)

A study of the energetic states of molecules under the influence of electromagnetic radiation leading to photochemical reactions or to spectroscopic phenomena. Prerequisite to Chemistry 219, Chemistry 112. Prerequisite to Chemistry 220, Chemistry 112 and 152. (1964-65 and alternate years; academic year—evening.) Filipescu

221-22 *Advanced Analytical Chemistry** (2 or 3, 2 or 3)

Lecture (12 hours), laboratory (18 hours—optional). Theory and application of recent spectrometry methods of analysis including electrical, magnetic, and optical emission spectrometry. Prerequisite: Chemistry 221, 222, and qualifying examination. The first half may be taken for 2 credits a semester without laboratory work, other half may be taken first. Laboratory fee, \$11 a semester. (First half, not offered 1964-65; Second half, full—evening.) Karyle, Schmidt

231-32 *Special Topics in Inorganic Chemistry* (2-2)

A series of one-semester courses covering such topics as (1) chemistry of the less familiar elements, (2) organometallic, organoboron, and carbonyl compounds, and (3) coordination chemistry. Prerequisite: Chemistry 134 or 235. (Academic year—evening.) White, Penco

234 *Radiochemistry* (2)

The preparation, properties, and uses of radioactive isotopes, both natural and artificial. Prerequisite: Chemistry 235-36. (1964-65 and alternate years; fall—evening.) White

235-36 *Advanced Inorganic Chemistry** (3-2)

Application of modern chemical theories to inorganic substances and reactions. The course is based by a detailed study, developed from the periodic table, of the chemistry of the more common elements. Prerequisite: Chemistry 134 and qualifying examination. Prerequisite or concurrent registration: Chemistry 114, 115. (Academic year—evening.) Schwab

251-52 *Advanced Organic Chemistry** (3-3)

Synthesis, reactions, and properties of carbon compounds; fundamental theories of organic chemistry. Prerequisite: Chemistry 114 and 115 and qualifying examination. Prerequisite or concurrent registration: Chemistry 114, 115. (Academic year—evening.) Sager

253 *Advanced Synthetic Organic Chemistry** (3)

Study of reactions employed in the synthesis of organic compounds. Prerequisite: Chemistry 251. (Spring—evening.) Wrenn

* The appropriate qualifying examination is prerequisite to all "Advanced" courses.
† Approximate publication September 1964.

27. *Theoretical Organic Chemistry* (3-1) Sager
Survey of modern theories of organic chemistry with emphasis on reaction mechanisms.
Prerequisite: Chemistry 202. (1965-66 and alternate years.)
- 28-60 *Polymer Chemistry* (3-1) Filipescu
A study of the preparation, properties, and structure of macromolecules. Prerequisite:
Chemistry 112 and 132. (1964-65 and alternate years; academic year—evening.)
- 61-92 *Seminar: Recent Developments in Chemistry* (1-1) The Staff
(Academic year—day.)
- 93-96 *Research* (att.) The Staff
Research on problems approved by the Staff. Open to qualified students with ad-
vanced training. Laboratory fee, \$7.50 a semester hour. (Academic year—as ar-
ranged; summer 1964.)
- 97-00 *Thesis* (3-3) The Staff
Laboratory fee, \$18 a semester. (Academic year—as arranged; summer 1964.)

Classical Languages and Literatures *

- Lecturer: J. E. Litman (Chairman)
Associate Professorial Lecturer: J. C. Wang
Lecturer: A. E. Sedman
Lecturer: D. B. Boers
- College of Arts with a major in Latin (Departmental)*—Prerequisite: the Arts and
Literatures course, page 14, including Latin 21-22 and History 20-21.
In addition to the general requirements, pages 20-22, 24-25, eighteen semesters
of Latin I, beyond four group courses, Art 111, Philosophy 111. A reading knowl-
edge of French or German, preferably both, is strongly recommended.
- Latin 1-2 and 3-4, or Greek 11-12 and 13-14 satisfies the foreign language requirement.

LATIN AND GREEK

FIRST GROUP

- First year Latin* (3-3) The Staff
This course is not given for the first half until the second half is completed.
Presentation of the elements of the language, with appropriate reading so
that the student can appreciate the literature. Introduction to Roman life and liter-
ature. (Academic year—day.)
- Second year Latin* (3-3) The Staff
This course is not given for the first half until the second half is completed.
Continuation of the first year course, but with increased emphasis on Latin readings.
(Academic year—day.)

which illustrate Roman life and literature; continuation of vocabulary building in English. Prerequisite: Latin 1-2 or two years of high school Latin. (Academic year—evening.)

11-12 *First-year Greek* (3-3)

A year course; credit is not given for the first half until the second half is completed. Essentials of grammar with appropriate reading selections. (Academic year—evening.)

13-14 *Second-year Greek* (3-3)

A year course; credit is not given for the first half until the second half is completed. Review of grammar; rapid reading from selected Greek authors. (1965-66 and alternate years.)

49-50 *Latin Grammar and Readings* (3-3)

Primarily for graduate students preparing for reading examinations. Undergraduates admitted by permission of the instructor. No academic credit for graduate students. *First half:* essentials of Latin grammar with appropriate reading selections. *Second half:* continuation of grammar with selections from various Latin authors for rapid reading. (Academic year—as arranged.)

51-52 *Introduction to Latin Prose and Poetry* (3-3)

Selections from Cicero and Caesar, Virgil and Ovid. Prerequisite: Latin 3-4 or three years of high school Latin. (Academic year—day.)

SECOND GROUP

101-2 *Roman Comedy* (3-3)

Selected plays from Plautus and Terence. Prerequisite: Latin 51-52 or permission of the instructor. (1965-66 and alternate years.)

111-12 *Roman History and Philosophy* (3-3)

Selections from Cicero, Sallust, Lucretius, and Livy. Prerequisite: Latin 51-52 or permission of the instructor. (Academic year—day.)

121-22 *Roman Lyric Poetry and Satire* (3-3)

Selections from Catullus, Horace, Juvenal, and Martial. Prerequisite: Latin 101-2 or permission of the instructor. (1965-66 and alternate years.)

COURSES IN ENGLISH TRANSLATION

FIRST GROUP

71-72 *Greek and Roman Backgrounds in Literature* (3-3)

Selected Greek and Roman masterpieces and their literary influence. This course satisfies the literature requirement. See (1) footnote, page 90. (First half: spring—day. Second half: fall—day.)

SECOND GROUP

109-10 *Greek and Roman Drama* (3-3)

Selected tragedies of Aeschylus, Sophocles, Euripides, and Seneca; selected comedies of Aristophanes and Menander, Plautus and Terence; historical development of classical drama. (Academic year—day.)

CLASSICAL HEBREW

FIRST GROUP

21-22 *First-year Classical Hebrew* (3-3)

Seidman

A year course; credit is not given for the first half until the second half is completed. Fundamental principles of the language with practice in reading simple narrative prose. (Academic year—day.)

23-24 *Second-year Classical Hebrew* (3-3)

Seidman

A year course; credit is not given for the first half until the second half is completed. Review of grammar and exegesis of selected passages from the Hebrew text of the Old Testament. (1965-66 and alternate years.)

CHINESE (MANDARIN)

FIRST GROUP

21-22 *First-year Chinese* (3-3)

Wang

A year course; credit is not given for the first half until the second half is completed. For beginners. Pronunciation, conversation, reading, writing basic Chinese characters. Aural training, oral practice in classroom language workshop. Workshop fee, \$6 a semester. (First half: fall—evening; summer 1964. Second half: fall and spring—evening; summer 1964.)

23-24 *Second-year Chinese* (3-3)

Wang

A year course; credit is not given for the first half until the second half is completed. Continuation of grammar and spoken Chinese, more emphasis on the written language. Reading, writing commonly used Chinese characters, reading selected writings. Aural training, oral practice in classroom language workshop. Workshop fee, \$6 a semester. Prerequisite: Chinese 21-22 or the equivalent. (First half: fall and spring—evening. Second half: spring—evening.)

RELATED COURSES IN OTHER DEPARTMENTS

- 101-102 *Greek and Roman Architecture* (3)
- 101-102 *Greek and Roman Sculpture* (3)
- 101-101 *Classical Archeology* (3)
- 101-101 *Teaching Latin* (3)
- 101-101 *History of Philosophy* (3)
- 101-101 *Administration 215 Seminar: the Ancient City* (3)

Economics*

Faculty: A. E. Burns, D. S. Watson, T. W. Howard, J. W. Kendrick, W. E. Schmidt,
S. Lewitan (Research), J. W. Skinner (Chairman), C. T. Stewart, Jr. (Research)
Lecturer: R. F. Moor
*For a list of instructors for the academic year 1963-64
*For a list of instructors for the academic year 1963-64

Associate Professors Henry Solomon (*Research*), Joseph Aschheim, R. P. Sharkey
Associate Professors and Lecturers R. L. Simmons, D. I. Edwards
Assistant Professors Ching-Yao Hsieh, S. L. Hunter, L. D. Bothwell, Mary Holman
 (*Research*)
Lecturers Paul Gekker, S. E. Haber

Bachelor of Arts with a major in Economics (Departmental).—Prerequisite: the Arts and Letters curriculum, page 14, including Economics 1-2 and Statistics 51.

Required: the general requirements, pages 20-22, 24-25, and (1) Economics 101-2 and 121 and fifteen additional hours in second-group courses to be selected with the approval of the adviser; (2) Economics 190 which may be taken upon the completion of Economics 101-2 and 121; (3) Statistics 111, 112; (4) nine semester hours of other second-group courses selected with the approval of the adviser.

Bachelor of Arts with a major in Latin American Civilization (Field of Study).—See the Department of History.

Master of Arts in the field of Economics.—Prerequisite: the degree of Bachelor of Arts with a major in Economics at this University, or the equivalent.

Required: the general requirements, pages 27-28, 29-30, including Economics 210, at least nine semester hours in economic theory, and a thesis (Economics 299-300).

Doctor of Philosophy.—See the Graduate Council Catalogue.

Master of Arts in Government with a major in Economic Policy.—Prerequisite: an undergraduate major in Economics at this University, or the equivalent. See the School of Government, Business, and International Affairs Catalogue.

FIRST GROUP

1-2 Principles of Economics* (3-3)

Lecture (2 hours), recitation (1 hour). Survey of the major economic principles, institutions, and problems in contemporary life. Economics 1 is prerequisite to Economics 2. (First half: fall and spring—day and evening; summer 1964. Second half: fall—evening; spring—day and evening; summer 1964.)

Skinner and Staff

SECOND GROUP

101-2 Economic Analysis (3-3)

Analysis of demand, supply, and pricing; theory of national income determination. (First half: fall—day and evening; spring—evening; summer 1964. Second half: fall—day; spring—day and evening; summer 1964.)

The Staff

104 History of Economic Thought (3)

History of the major schools of economic thought; influence of changing problems on the development of economic theory. (Spring—day.)

Burns

105 Business Cycles (3)

Description and analysis of the facts of economic instability, survey of recent business cycle theory, forecasting, and consideration of counter-cyclical policies. (Fall—evening.)

Kendrick

121 Money and Banking (3)

Theory of money, credit, and banking; commercial banking and the Federal Reserve System; other financial institutions; international aspects of money; current financial problems. (Fall—day and evening; spring—evening; summer 1964.)

Hunter

123 Monetary Theory and Policy (3)

Principal contemporary theories, background of recent monetary policy. (Day.)

Hunter
(Spring—)

* Economics 1-2 is prerequisite to all other courses in Economics.

10. *The Economy of the Soviet Union* (3)
Description and main features of the economic life of the Soviet Union. (See History 16, 46 and Geography 166. (Not offered 1964-65.)
11. *Unionism and Collective Bargaining* (3)
The development and characteristics of American unionism and collective bargaining in economic and social institutions; material of economic and social aspects, public values and controls. (Fall—day.) Holland
12. *Labor Economics* (3)
Characteristics of the American labor force; operations of labor markets; wage theories and theories; impact of collective bargaining; causes and characteristics of unemployment; public policies and programs. (Spring—day.) Holland
13. *Public Finance and Taxation* (3, 3)
General survey of government expenditures; sources and methods of taxation; economic effects of expenditures; taxes, and of government debt policies. (Academic year—morning.) The Staff
14. *Government Control of Economic Activity* (3)
Growing role of government in promoting and regulating economic activity; types and forms of control. (Fall—day.) Watson
15. *International Economics* (3, 3)
Two half-surveys of the theory of international trade, factor movements, and balance of payments adjustment. Second half analysis of modern international economic problems including problems of less developed countries. (Academic year—day and evening.) Schmidt
16. *Economic History and Problems of Latin America* (3, 3)
History of the economies of Latin America with particular emphasis on present structural and problems, considered in the regional context, and sub-regional contexts. Economics 126, special attention to Middle American; Economics 126, special attention to North America. (Academic year—evening.) The Staff
17. *Proseminar in Economics* (3)
(Comprehensive survey of economics. Prerequisite: Economics 101-2 and 121. (Fall) Skinner

THIRD GROUP

18. *History and Literature of Economic Thought* (3-3)
Critical analysis and interpretation of the development and the literature of economic thought; causes and problems of the major types of theory, and their relation to present theories and policies. (Academic year—evening.) Burns
19. *Contemporary Price Theory* (3, 3)
The theory of relative prices from Marshall to the present. (Academic year—evening.) Watson
20. *Theory of Employment and Income* (3)
Concepts of the level of employment and income; Keynesian and classical systems; historical and recent literature on the subject. (Fall—evening.) Kendrick
21. *Business Cycle Analysis* (3)
Critical analysis of American business cycles; evaluation of the methodology and findings of the National Bureau of Economic Research; Statistical tests of theories of the business cycle. (Spring—evening.) Kendrick
22. *The National Income* (3)
The theory of economic aggregates; measurement and policy aspects of national income. (Spring—evening.) Kendrick

- 210 *Seminar in Economics* (3)
Methodology of economics, integration of economic theories, methods of research. Open only to students who have completed fifteen hours of graduate work in economics (Academic year—evening.) Skinner
- 212 *Seminar in Price Theory* (3)
Advanced topics in the theory of relative prices. Prerequisite: Economics 203-4 or the equivalent. (Fall—evening.) Watson
- 213 *Economic Thought in the 20th Century* (3)
Continuation of Economics 201-2. The principal trends in economic thought during the present century. (Fall—evening.) Burns
- 215-16 *Mathematical Economics* (3-3)
Introduction to the uses of mathematics in economic theory. (Academic year—evening.) Solomon
- 217-18 *Survey of Economics* (3-3)
Survey of economic analysis and policy. Not open to graduate students in economics or economic policy. (Academic year—evening.) Watson
- 219 *Managerial Economics* (3)
Analysis of price, production, and inventory policies of business firms (1964-65.) (Not offered) Hunter
- 221-22 *Monetary Theory* (3-3)
Contemporary monetary theories. (Academic year—evening.) Aschheim
- 223-24 *Monetary Policy and Central Banking* (3-3)
The money system in its relation to national income; monetary policies of the Federal Reserve and other central banking systems. (Academic year—evening.) Solomon
- 231-32 *Quantitative Economics* (3-3)
Selected topics in quantitative economics. (Academic year—evening.) Holland
- 241 *Unionism, Collective Bargaining, and Labor Economics* (3)
An accelerated introductory course in labor economics primarily for graduate students in Personnel Administration. (Fall—evening.) Holland
- 244 *Problems in Unionism, Collective Bargaining, and Labor Economics* (3)
Concentrated study of selected economic, social, and legal aspects of labor relations and labor economics. (Spring—evening.) Holland
- 246 *Foreign Labor Movements* (3)
Labor in the economic, social, and political structures of selected foreign countries. Contrasts and comparisons with the United States. (Spring—evening.) Holland
- 247 *Labor Relations in the Federal Service* (3)
Admission by permission of the instructor. (Fall and spring—evening.) Schmidt
- 251-52 *Economic Development* (3-3)
The theories and problems of economic growth with special attention to the undeveloped countries. (Academic year—evening.) Kendrick
- 253 *Productivity Analysis* (3)
Concepts and measures of productivity; relations to economic growth and to structural changes in the American economy. (Fall—evening.) Moor
- 261-62 *Public Finance and Fiscal Policy* (3-3)
Special problems in contemporary public finance and fiscal policy. (Academic year—evening.) The Staff
- 263-64 *Theory of Public Finance* (3-3)
Criteria for the allocation of government expenditures, principles of taxation, fiscal policy for stable growth. (Academic year—evening.)

- 25.66 *Theory of Economic Policy* (3-3) Watson
The nature, forms, methods, and objectives of economic policy; the relation of economic theory to economic policy. (Academic year—evening.)
- 25.7 *The Soviet Economy* (3) Gekker
Development of the Soviet-type economy; organization, policies, and problems: monetary, fiscal, production, allocative, foreign trade, economic growth. (See also History 33-46, 247-48, and Geography 166.) (Fall—evening.)
- 25.72 *International Economics* (3-3) Schmidt
First half: the theory of international trade and factor movements. Second half: the theory of balance-of-payments adjustment. (Academic year—evening.)
- 25.74 *United States Foreign Economic Policy* (3) Schmidt
Analysis of foreign aid program; international, commercial, and monetary policy of the United States; United States and international economic organization. (Not offered 1964-65.)
- 25.75 *Economic Development of Latin America* (3-3) Sammons
Current policies and programs: capital formation, public and private; foreign loans and investment; social and technological presentations of investment. (Academic year—evening.)
- 25.76 *Latin America: Trade and Commodity Policy* (3-3)
Tariffs and exchange control systems; bilateral and general commercial agreements; terms of trade. (Not offered 1964-65.)
- 25.77 *Seminar in International Economics* (3) Schmidt
Advanced topics in international economics. Prerequisite: Economics 281-82 or the equivalent. (1965-66 and alternate years—spring—evening.)
- 25.78 *Thesis* (3-3) The Staff
Academic year—as arranged, summer 1964.

COURSES OFFERED IN SPECIAL PROGRAMS

- In addition to the regular courses announced above, the University offers the following economics courses for students enrolled in Navy Graduate Financial Management Program and Air Force Advanced Management Program.
- Foreign Economic Policies and Problems (3)
- Governmental and Industrial Economics (3)

English*

Faculty: F. S. Shepard, C. D. Lumsden, C. W. Cole, R. H. Moore, J. H. Collierly, P. J. H. Jones, Jr., J. C. Allen, Jr., J. P. Rossing, Jr. (Chairman), R. H. Walker, Jr., William F. Turner, Marjorie McQuinn, R. E. Gajdoski, Elizabeth

*List of instruction is for the academic year 1963-64.
*English taken during semester 1963-64.
*English taken during semester 1964-65.

Assistant Professors M. E. Lyon, R. C. Redden*, Louise Clubb, R. R. Columbus

Lecturer J. J. Monroe

Instructors Dorothy Clark, L. E. Dodd, Arlyn Edelman, G. C. Landon, F. R. Tate,
J. A. L. LeMay, R. F. Marler, Jr., Judith Searle

Associates J. S. Toomey, Eileen Allen, K. T. Samendinger, V. C. Trofi, D. F. White

Bachelor of Arts with a major in American Thought and Civilization (Field of Study). Prerequisite: the Arts and Letters curriculum, page 14.

Requires the general requirements, pages 20-22, 23-24, and the passing of the American Thought and Civilization major examination at the end of the senior year. The coordinated field of knowledge upon which the student will be examined is summarized under four general headings: (1) European cultural history—the Renaissance and modern social and intellectual cultures as a background to contemporary civilization with particular attention to English literature and history from the 16th through the 19th centuries; (2) American history—the political, economic, social, and religious thought and experience of the American people; (3) American philosophy and fine arts—a survey of periods and movements with a knowledge of outstanding individuals; (4) American literature—the Department of English provides a program (English 179-80) intended to assist the student in preparing himself for the major examination. The major adviser will give to each student at registration a check list of available courses grouped as prerequisite, necessary, or desirable for the completion of the major study program.

American Thought and Civilization 101. *American Civilization* is recommended as a senior year elective for American Thought and Civilization majors.

Bachelor of Arts with a major in English Literature (Field of Study). Prerequisite: the Arts and Letters curriculum, page 14. It is recommended that prospective majors elect English 91-92 from among the listed offerings.

Requires the general requirements, pages 20-22, 23-24, and the passing of the English Literature major examination at the end of the senior year. The field of coordinated knowledge upon which the student will be examined at the end of his senior year is summarized under the following general headings: (1) the history of English literature from the Anglo-Saxon period; (2) the chief English writers (a certain familiarity with each man and his main works and a detailed knowledge of Shakespeare); (3) English social and intellectual history as it bears upon or is reflected in the literature; (4) European intellectual background and movements which have affected English literature. The proportion of work taken in each of these areas should be worked out by the student in consultation with the Department of English advisers. The Department of English provides a program (English 199-200) to assist the student in preparing himself for the major examination. A detailed description of the major is available in the Office of the Dean of Columbia College.

American Thought and Civilization 101. *American Civilization* is recommended as a senior year elective for English Literature majors.

Master of Arts in the field of American Literary and Cultural History. Prerequisite: the equivalent of an undergraduate major in this University in (1) History (with American history as a major part), (2) American Thought and Civilization, or (3) English Literature (with introductory courses in American literature and American history). The student who has not taken any of the above majors at this University must take a candidate examination.

Requires in addition to the general requirements, pages 27-29, 29-30, the following specific requirements must be met: twelve of the required semester hours must be of senior study, six in American history and six in American literature; twelve of the required semester hours must be of second and third group courses in the fields of American history, literature, philosophy, education, and art recommended by the adviser; a thesis (six semester hours) in any of the foregoing fields or in some combination of them. Because of the various undergraduate majors which will be accepted for admission to this program, a basic reading list is assigned to all students, to assist in preparing them for the final Master's examination.

Master of Arts in the field of English and American Literature. Prerequisite: an undergraduate major in English or American literature.

* On leave of absence 1965-66.

* See page 63 for description of American Thought and Civilization University-sponsored course.

graduate major in English Literature or American Thought and Civilization at this University at twenty-four semester hours in English and/or American literature above the sophomore level. The student who has not taken either of the above majors at this University must take a candidacy examination. The student offering such preparation in English and American literature will be evaluated in English and American literature.

Suppose, in addition to the general requirements, pages 27-30, 29-30, the following special requirements must be met: (1) a candidate of interest amounting to twenty-four semester hours, planned in consultation with the advisor on the basis of the student's undergraduate preparation, to include a comprehensive survey of American literature and of English literature from 1600; (2) a Master's thesis (six semester hours) written upon an approved topic under the direction of the instructor in whose field the major portion of the thesis falls; (3) a final written examination in American literature and in English literature from 1600.

Major of Arts in the Field of English Literature.—Prerequisite: an undergraduate major in English Literature at this University, or twenty-four semester hours in English literature above the sophomore level. The student who has not passed the major examination at this University must take a candidacy examination which, in its scope and content, is similar to the major examination in English.

In addition to the general requirements, pages 27-30, 29-30, the following special requirements must be met: (1) a candidate of interest amounting to twenty-four semester hours, planned in consultation with the advisor; (2) a Master's thesis (six semester hours) written upon an approved topic under the direction of the instructor in whose field the thesis falls; and (3) a final written examination.

Major of Arts in the Field of Linguistics.—See pages 112-14, and the departments of Foreign Languages and Literatures and Romance Languages and Literatures.

Major of Philosophy.—See the Graduate Council Catalogue.

Major of Arts in Education with a teaching field in English.—Prerequisite: the Education major, page 16.
See the English section and the professional courses listed in the School of Education Catalogue.

ENGLISH COMPOSITION*

FIRST GROUP

English I for Foreign Students (1) Wright and Staff
A course in reading and writing designed to assist the foreign student in overcoming difficulties in the use of English. Special attention is given to spelling, syntax, grammar, and vocabulary. (Fall and spring—also and evening; summer 1964.)

English I for Foreign Students (2) Wright and Staff
A course for foreign students not yet ready for English I. Writing of expository essays (the and, them), including the composition, vocabulary, and grammar. (Fall—evening; spring—day and evening) summer 1964.)

English Composition (1)* Moore and Staff
A course in composition, readings. (Fall and spring—also and evening; summer 1964.)

English Composition (2)* Moore and Staff
A course in composition, readings. (Fall and spring—also and evening; summer 1964.)

1X English Composition* (3)

An intensive course in English grammar and composition to which are assigned students whose placement tests show them inadequately prepared for the regular work of English 1. The course begins with detailed instruction, drill, and exercises in the basic structure of the English language and in the writing of paragraphs; it continues with the content of English 1. English 1X meets five hours a week and carries 3 semester hours of credit. The total fee is \$165 (the tuition fee of \$108 plus an additional fee of \$25.) (Fall and spring—day and evening; summer 1964.)

Moore and Staff

2 English Composition* (3)

For second semester freshmen not following the Columbian College of Arts and Sciences sequence. Readings and practice in expository and argumentative techniques and in research procedure. Prerequisite: English 1 or 1X. (Fall and spring—day and evening; summer 1964.)

Moore and Staff

4 English Composition* (3)

The second half of the six-hour English Composition course required of students in Columbian College. A course in critical analysis and practice in expository and argumentative techniques and in research procedure. Prerequisite: English 1 or 1X and both semesters of one of the introductory literature courses. (Fall and spring—day and evening; summer 1964.)

Moore and Staff

SECOND GROUP**109 Expository Writing (3)**

A study of types of expository writing with weekly exercises based on students' needs; particular attention may be given to problems in the writing of graduate theses. Prerequisite: English 1 or 1X, and 2 or 4. (Fall—day.)

McClanahan

113 Narrative Writing (3)

Study of the techniques of narrative writing and class criticism of student writing. Prerequisite: English 1 or 1X, and 2 or 4. (Fall—day and evening.)

Gajdusek

114 The Writing of Fiction—the Short Story (3)

Prerequisite: English 113; consent of instructor. (Fall—evening.)

Gajdusek

117-18 The Writing of Fiction—the Novel (3-3)

Writing a novel. Prerequisite: English 114; consent of instructor. (Academic year—evening.)

Gajdusek

120 The Writing of Poetry (3)

Prerequisite: consent of the instructor. (Spring—evening.)

Gajdusek

ENGLISH LITERATURE**FIRST GROUP****51-52 Introduction to English Literature† (3-3)**

Historical survey. Prerequisite: English 1 or 1X. (Academic year—day and evening; summer 1964.)

Highfill and Staff

91-92 Introduction to European Literature† (3-3)

Consideration of various types. Prerequisite: English 1 or 1X. (Academic year—day and evening; summer 1964—English 92 (3).)

Shepard and Staff

SECOND GROUP†**121-22 English Literature from the Beginnings to 1500 (3-3)**

First half: English literature prior to Chaucer. Second half: Chaucer. (First half: summer 1964. Second half: spring—day.)

Allee

* See footnote on page 88.
† All students admitted to Columbia leading to Bachelor's degrees in Columbian College (who are required to take one year of English composition and one year of literature in French, German, Italian, Spanish, French, German, Spanish, or Spanish) will follow the sequence of English 1 or 1X, English 51-52, 91-92, 113-114, 117-118, 120, 121-22, French 51-52, German 51-52, Spanish 51-52, or Spanish 51-52. Prerequisite to all second-group courses except English 125.

- 125 *Introduction to English Linguistics* (3)
The development of the English language in a historical treatment of English grammar. (Fall-evening) Allee
- 25-30 *Elizabethan Non-dramatic Literature* (3-3)
Non-dramatic literature from 1485 to 1601. (Academic year-day) Clubb
- 35-36 *Shakespeare* (3-3)
Academic year-day
- 41-46 *The 17th Century* (3-3)
First half: poetry and prose from 1603 to 1660. Second half: Milton. (First half: not offered 1964-65. Second half: spring-day) Linton
- 42 *English Literature, 1660-1720* (3-3)
Poetry and prose of the Neo-Classical period. (Academic year-day; summer 1964-English 141 (3)) Highfill
- 51-52 *The Romantic Movement* (3-3)
Poetry and prose from 1780 to 1830. (Academic year-evening) Reising
- 52 *Victorian Literature* (3-3)
Poetry and prose from 1830 to 1900. (Academic year-evening) Columbus
- 55-56 *The 20th Century* (3-3)
Poetry, prose, and drama since 1900. (Academic year-day; summer 1964-English 165 (3)) Linton
- 62 *The English Novel* (3-3)
Major English novelists of the 18th and 19th centuries. (Academic year-day) Clubb
- 63 *The English Drama* (3-3)
First half: overview primarily with the drama of Shakespeare's contemporaries. Second half: a historical survey from 1600 to the present day. (First half: summer 1964-65. Second half: not offered 1964-65.) Highfill
- 64 *Medieval Legend and Saga* (3)
Poetry and prose. (Not offered 1964-65) Allee
- 65 *Proseman: Readings for the English Literature* (3-3)
Lectures and group discussions. (Academic year-day and evening) Highfill, Reising

THIRD GROUP

- 1-4 *Old English* (3-3)
Language and literature before 1100. First half: Old English grammar and language. Second half: Beowulf. (Academic year-evening) Allee
- 5-8 *Studies in Shakespeare and His Contemporaries* (3-3)
Academic year-evening; summer 1964-English 135-36 (Not offered 1964-65.)
- 9-12 *Studies in 17th Century Literature* (3-3)
For qualified undergraduates. First half: dated figures exclusive of Milton. Second half: Milton. (Not offered 1964-65.) Reising
- 13-16 *Studies in Neoclassical Literature* (3-3)
Academic year-evening; summer 1964-English 141-42. (Not offered 1964-65.) Highfill
- 17-20 *Studies in the Romantic Movement* (3-3)
Academic year-evening; summer 1964-English 151-52. (Not offered 1964-65.) Reising
- 21-24 *Studies in Victorian Literature* (3-3)
Academic year-evening; summer 1964-English 161-62. (Not offered 1964-65.) Columbus

265-66 *Studies in 20th Century Literature* (3-3)

Elton and his contemporaries. (Academic year—day; summer 1964—English 266 (3-3)) Linton, Gajdusek

273-74 *Research Methods and Bibliographical Materials* (3-3)

For description of course see American Literature 233-74, page 93. Highfill

283-84 *Studies in the History of the British Drama and Theater* (3-3)

Prerequisite: English 135-36, or 193-84, or 175-76, or the equivalent. (Academic year—day.)

295-96 *Studies in the History of English Literary Criticism* (3-3)

Open to undergraduates with the approval of the instructor. (Not offered 1964-65.) Shepard
The Staff

299-300 *Theses* (3-3)

AMERICAN LITERATURE

FIRST GROUP

71-72 *Introduction to American Literature** (3-3)

A historical survey. *First half*: from the beginnings to the Civil War. *Second half*: from the Civil War to the present. Prerequisite: English I or 1X. (Academic year—day and evening; summer 1964.) Cole and Staff

SECOND GROUP*

170 *The American Short Story* (3)

The historical development of the short story in America. (Summer 1964.) Coberly

171-72 *Studies in American Literature* (3-3)

Major factors in the national critical tradition as shown by outstanding writers. Prerequisite: English 51-52 or 71-72. (Academic year—day and evening; summer 1964—English 171 (3-3)) Lyon

173-74 *Major American Poets* (3-3)

Advanced critical study of significant writers and movements. *First half*: from beginnings through 19th century. *Second half*: the 20th century. (Academic year—day; summer 1964.) Cole

175-76 *American Drama* (3-3)

Historical and critical study of significant plays and forms. *First half*: from beginnings through 19th century. *Second half*: the 20th century. (Academic year—day; summer 1964—English 176 (3-3)) Coberly

177-78 *The American Novel* (3-3)

Historical and critical study of significant novels and short stories. *First half*: from beginnings through 19th century. *Second half*: the 20th century. (Academic year—day and evening.) Walker

179-80 *Proseminar: Readings for American Thought and Civilization Majors* (3-3)

Conferences and group discussions. (Academic year—day and evening.)

* All students enrolled in courses leading to Bachelor's degrees in Columbia College (who are required to take one year of English composition) and all students at other colleges who are required to take one year of English composition or Spanish) will receive the equivalent of English I or 1X. Full satisfaction of one of the above language courses will receive the equivalent of English I or 1X. English 51-52, 71-72, 81-82, 91-92, 101-102, 111-112, 121-122, 131-132, 141-142, 151-152, 161-162, 171-172, 181-182, 191-192, 201-202, 211-212, 221-222, 231-232, 241-242, 251-252, 261-262, 271-272, 281-282, 291-292, 301-302, 311-312, 321-322, 331-332, 341-342, 351-352, 361-362, 371-372, 381-382, 391-392, 401-402, 411-412, 421-422, 431-432, 441-442, 451-452, 461-462, 471-472, 481-482, 491-492, 501-502, 511-512, 521-522, 531-532, 541-542, 551-552, 561-562, 571-572, 581-582, 591-592, 601-602, 611-612, 621-622, 631-632, 641-642, 651-652, 661-662, 671-672, 681-682, 691-692, 701-702, 711-712, 721-722, 731-732, 741-742, 751-752, 761-762, 771-772, 781-782, 791-792, 801-802, 811-812, 821-822, 831-832, 841-842, 851-852, 861-862, 871-872, 881-882, 891-892, 901-902, 911-912, 921-922, 931-932, 941-942, 951-952, 961-962, 971-972, 981-982, 991-992, 1001-1002, 1011-1012, 1021-1022, 1031-1032, 1041-1042, 1051-1052, 1061-1062, 1071-1072, 1081-1082, 1091-1092, 1101-1102, 1111-1112, 1121-1122, 1131-1132, 1141-1142, 1151-1152, 1161-1162, 1171-1172, 1181-1182, 1191-1192, 1201-1202, 1211-1212, 1221-1222, 1231-1232, 1241-1242, 1251-1252, 1261-1262, 1271-1272, 1281-1282, 1291-1292, 1301-1302, 1311-1312, 1321-1322, 1331-1332, 1341-1342, 1351-1352, 1361-1362, 1371-1372, 1381-1382, 1391-1392, 1401-1402, 1411-1412, 1421-1422, 1431-1432, 1441-1442, 1451-1452, 1461-1462, 1471-1472, 1481-1482, 1491-1492, 1501-1502, 1511-1512, 1521-1522, 1531-1532, 1541-1542, 1551-1552, 1561-1562, 1571-1572, 1581-1582, 1591-1592, 1601-1602, 1611-1612, 1621-1622, 1631-1632, 1641-1642, 1651-1652, 1661-1662, 1671-1672, 1681-1682, 1691-1692, 1701-1702, 1711-1712, 1721-1722, 1731-1732, 1741-1742, 1751-1752, 1761-1762, 1771-1772, 1781-1782, 1791-1792, 1801-1802, 1811-1812, 1821-1822, 1831-1832, 1841-1842, 1851-1852, 1861-1862, 1871-1872, 1881-1882, 1891-1892, 1901-1902, 1911-1912, 1921-1922, 1931-1932, 1941-1942, 1951-1952, 1961-1962, 1971-1972, 1981-1982, 1991-1992, 2001-2002, 2011-2012, 2021-2022, 2031-2032, 2041-2042, 2051-2052, 2061-2062, 2071-2072, 2081-2082, 2091-2092, 2101-2102, 2111-2112, 2121-2122, 2131-2132, 2141-2142, 2151-2152, 2161-2162, 2171-2172, 2181-2182, 2191-2192, 2201-2202, 2211-2212, 2221-2222, 2231-2232, 2241-2242, 2251-2252, 2261-2262, 2271-2272, 2281-2282, 2291-2292, 2301-2302, 2311-2312, 2321-2322, 2331-2332, 2341-2342, 2351-2352, 2361-2362, 2371-2372, 2381-2382, 2391-2392, 2401-2402, 2411-2412, 2421-2422, 2431-2432, 2441-2442, 2451-2452, 2461-2462, 2471-2472, 2481-2482, 2491-2492, 2501-2502, 2511-2512, 2521-2522, 2531-2532, 2541-2542, 2551-2552, 2561-2562, 2571-2572, 2581-2582, 2591-2592, 2601-2602, 2611-2612, 2621-2622, 2631-2632, 2641-2642, 2651-2652, 2661-2662, 2671-2672, 2681-2682, 2691-2692, 2701-2702, 2711-2712, 2721-2722, 2731-2732, 2741-2742, 2751-2752, 2761-2762, 2771-2772, 2781-2782, 2791-2792, 2801-2802, 2811-2812, 2821-2822, 2831-2832, 2841-2842, 2851-2852, 2861-2862, 2871-2872, 2881-2882, 2891-2892, 2901-2902, 2911-2912, 2921-2922, 2931-2932, 2941-2942, 2951-2952, 2961-2962, 2971-2972, 2981-2982, 2991-2992, 3001-3002, 3011-3012, 3021-3022, 3031-3032, 3041-3042, 3051-3052, 3061-3062, 3071-3072, 3081-3082, 3091-3092, 3101-3102, 3111-3112, 3121-3122, 3131-3132, 3141-3142, 3151-3152, 3161-3162, 3171-3172, 3181-3182, 3191-3192, 3201-3202, 3211-3212, 3221-3222, 3231-3232, 3241-3242, 3251-3252, 3261-3262, 3271-3272, 3281-3282, 3291-3292, 3301-3302, 3311-3312, 3321-3322, 3331-3332, 3341-3342, 3351-3352, 3361-3362, 3371-3372, 3381-3382, 3391-3392, 3401-3402, 3411-3412, 3421-3422, 3431-3432, 3441-3442, 3451-3452, 3461-3462, 3471-3472, 3481-3482, 3491-3492, 3501-3502, 3511-3512, 3521-3522, 3531-3532, 3541-3542, 3551-3552, 3561-3562, 3571-3572, 3581-3582, 3591-3592, 3601-3602, 3611-3612, 3621-3622, 3631-3632, 3641-3642, 3651-3652, 3661-3662, 3671-3672, 3681-3682, 3691-3692, 3701-3702, 3711-3712, 3721-3722, 3731-3732, 3741-3742, 3751-3752, 3761-3762, 3771-3772, 3781-3782, 3791-3792, 3801-3802, 3811-3812, 3821-3822, 3831-3832, 3841-3842, 3851-3852, 3861-3862, 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4781-4782, 4791-4792, 4801-4802, 4811-4812, 4821-4822, 4831-4832, 4841-4842, 4851-4852, 4861-4862, 4871-4872, 4881-4882, 4891-4892, 4901-4902, 4911-4912, 4921-4922, 4931-4932, 4941-4942, 4951-4952, 4961-4962, 4971-4972, 4981-4982, 4991-4992, 5001-5002, 5011-5012, 5021-5022, 5031-5032, 5041-5042, 5051-5052, 5061-5062, 5071-5072, 5081-5082, 5091-5092, 5101-5102, 5111-5112, 5121-5122, 5131-5132, 5141-5142, 5151-5152, 5161-5162, 5171-5172, 5181-5182, 5191-5192, 5201-5202, 5211-5212, 5221-5222, 5231-5232, 5241-5242, 5251-5252, 5261-5262, 5271-5272, 5281-5282, 5291-5292, 5301-5302, 5311-5312, 5321-5322, 5331-5332, 5341-5342, 5351-5352, 5361-5362, 5371-5372, 5381-5382, 5391-5392, 5401-5402, 5411-5412, 5421-5422, 5431-5432, 5441-5442, 5451-5452, 5461-5462, 5471-5472, 5481-5482, 5491-5492, 5501-5502, 5511-5512, 5521-5522, 5531-5532, 5541-5542, 5551-5552, 5561-5562, 5571-5572, 5581-5582, 5591-5592, 5601-5602, 5611-5612, 5621-5622, 5631-5632, 5641-5642, 5651-5652, 5661-5662, 5671-5672, 5681-5682, 5691-5692, 5701-5702, 5711-5712, 5721-5722, 5731-5732, 5741-5742, 5751-5752, 5761-5762, 5771-5772, 5781-5782, 5791-5792, 5801-5802, 5811-5812, 5821-5822, 5831-5832, 5841-5842, 5851-5852, 5861-5862, 5871-5872, 5881-5882, 5891-5892, 5901-5902, 5911-5912, 5921-5922, 5931-5932, 5941-5942, 5951-5952, 5961-5962, 5971-5972, 5981-5982, 5991-5992, 6001-6002, 6011-6012, 6021-6022, 6031-6032, 6041-6042, 6051-6052, 6061-6062, 6071-6072, 6081-6082, 6091-6092, 6101-6102, 6111-6112, 6121-6122, 6131-6132, 6141-6142, 6151-6152, 6161-6162, 6171-6172, 6181-6182, 6191-6192, 6201-6202, 6211-6212, 6221-6222, 6231-6232, 6241-6242, 6251-6252, 6261-6262, 6271-6272, 6281-6282, 6291-6292, 6301-6302, 6311-6312, 6321-6322, 6331-6332, 6341-6342, 6351-6352, 6361-6362, 6371-6372, 6381-6382, 6391-6392, 6401-6402, 6411-6412, 6421-6422, 6431-6432, 6441-6442, 6451-6452, 6461-6462, 6471-6472, 6481-6482, 6491-6492, 6501-6502, 6511-6512, 6521-6522, 6531-6532, 6541-6542, 6551-6552, 6561-6562, 6571-6572, 6581-6582, 6591-6592, 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9331-9332, 9341-9342, 9351-9352, 9361-9362, 9371-9372, 9381-9382, 9391-9392, 9401-9402, 9411-9412, 9421-9422, 9431-9432, 9441-9442, 9451-9452, 9461-9462, 9471-9472, 9481-9482, 9491-9492, 9501-9502, 9511-9512, 9521-9522, 9531-9532, 9541-9542, 9551-9552, 9561-9562, 9571-9572, 9581-9582, 9591-9592, 9601-9602, 9611-9612, 9621-9622, 9631-9632, 9641-9642, 9651-9652, 9661-9662, 9671-9672, 9681-9682, 9691-9692, 9701-9702, 9711-9712, 9721-9722, 9731-9732, 9741-9742, 9751-9752, 9761-9762, 9771-9772, 9781-9782, 9791-9792, 9801-9802, 9811-9812, 9821-9822, 9831-9832, 9841-9842, 9851-9852, 9861

THIRD GROUP

- 71-72 *Seminar in American Thought* (3-3) Walker
Intensive consideration of specific periods and themes, primarily literary, in the history of American civilization. Prerequisite: English 171-72 or the equivalent. (Academic year-evening.)
- 73-74 *Research Methods and Bibliographical Materials* (3-3)
To acquaint graduate students with the principal sources of bibliography and with typical problems in research. (Not offered 1964-65.)
- 75-76 *Studies in American Fiction* (3-3) Coberly
Prerequisite: English 177-78 or the equivalent. Open to the undergraduate with the approval of the instructor. (Not offered 1964-65) summer 1964—English 277 (3-3.)
- 77-78 *Reading Course in American Civilization* (3-3) Walker
A consideration of the principal descriptive and interpretative works dealing with American civilization, with emphasis on the interdisciplinary understanding of this subject. Prerequisite: at least one upper division or graduate course in both American literature and American history. (Not offered 1964-65.)
- 79-80 *Reading Course in American Fiction* (3-3) Coberly
Intended for graduate students. Designed to cover the literature and the critical materials for which the student will be responsible on comprehensive and final examinations. (Academic year-evening.)
- 81-82 *Thesis* (3-3) The Staff

RELATED COURSES IN OTHER DEPARTMENTS

- Classical Languages and Literatures 71-72, *Greek and Roman Backgrounds in Literature* (3-3)
- Education 136, *Teaching English* (3)
- History 151-52, *English History* (3-3)
- Philosophy 111-12, *History of Philosophy* (3-3)
- Speech B.C., *American Speech for Foreign Students* (3-3)
- Speech 102, *Oral Interpretation of Literature* (3)

Geography and Regional Science*

- Chairman: R. D. Campbell (Chairman I), Samuel Van Velsburg (Chairman II)
Associate Lecturer: Victor Petrus
Associate Professors: J. T. Davis, H. W. Westermann
Professor: A. R. Casseney
- Students of Arts with a major in Geography (Departmental). Prerequisite: the Arts degree curriculum, page 14, including Geography 51, 52, and Geography 1-4.
- Students of Science with a major in Geography (Departmental). Prerequisite: the Science degree curriculum, page 14, including Geography 51, 52, and Geography 1-4.

Required: in addition to the general requirements, pages 20-22, 24-25, twenty-six semester hours of Geography beyond first-group courses, including Geography 103-4 and 189-90, twelve hours from Group A and six hours from Group B.

Group A: Geography 126, 127, 141-42, 145, 146. Group B: Geography 151, 153, 154, 155, 156, 161, 164, 165, 166.

American Thought and Civilization 101 *American Civilization* is recommended as a senior year elective for Geography majors.

Bachelor of Arts with a major in Urban and Regional Development (Departmental).—Prerequisite: the Arts and Letters curriculum, page 14, including Geography 51, 52; Geology 1-2; and Statistics 91.

Required: in addition to the general requirements, pages 20-22, 24-25, thirty-two semester hours of Geography which must include Geography 103-4, 183, 134, 141-42, and 173-74. Required also are Political Science 104 and Statistics 117. It is recommended that electives be chosen from among the following courses: Sociology 126, 135, 137, 147; Economics 161-62; Political Science 146; History 111-12; and Philosophy 121-22.

American Thought and Civilization 101 *American Civilization* is recommended as a senior year elective for Urban and Regional Development majors.

Bachelor of Arts with a major in Regional Science (Departmental).—Prerequisite: the Arts and Letters curriculum, page 14, including Geography 51, 52; Geology 1-2; statistics 91; and Mathematics 21, 22, 23, 24.

Required: in addition to the general requirements, pages 20-22, 24-25, thirty semester hours of Geography, which must include Geography 103-4, 179-80, and twenty-one semester hours selected from Geography 123, 125, 133, 134, 141-42, 173-74, 175-76. Required also are Statistics 117, 118, 157-58; Philosophy 121-22; Political Science 104.

American Thought and Civilization 101 *American Civilization* is recommended as a senior year elective for Regional Science majors.

Master of Arts in the field of Geography.—The general requirements, pages 27-28, 30, including Geography 201-2, 205-6, 299-300.

Master of Arts in the field of Urban and Regional Development.—The general requirements, pages 27-28, 29-30, including Geography 205-6, 233-34, 233-54, and 299-300.

Doctor of Philosophy.—See the Graduate Council Catalogue.

Bachelor of Science in Cartography.—See pages 97-98, "Courses Offered in Special Programs" and the College of General Studies Catalogue for complete details.

Bachelor of Arts in Education with a teaching field in Geography.—Prerequisite: the Education curriculum, page 16.

Required: the Geography option and the professional courses listed in the School of Education Catalogue.

FIRST GROUP

51 Introduction to Geography (3)

A study of place attributes and characteristics, patterns and associations of physical and cultural earth features. (Fall—day; spring—evening.)

52 World Regions (3)

The analysis of world regional divisions, description and interpretation of region places, evaluation of regional differences as they affect the distribution and activities of man. (Fall—evening; spring—day.)

SECOND GROUP

103-4 Cartography (3-3)

A year course credit is not given for the first half until the second half is completed. Principles of cartographic drafting, elementary map projections; map and graph planning, design and construction; uses and interpretation of maps. Prerequisite: Geography 51 and 52. Laboratory fee, \$11 a semester. (Academic year—Saturday morning.)

The Staff

The Staff

The Staff

134 Land Capabilities (3)

Evaluation of land capabilities based on analysis of locational, physical, economic, and social land characteristics. Principles of site analysis and best use. Systems of measurement of area potential. (1965-66 and alternate years.)

2 Transportation Complexes (3)

A study of transportation networks and systems by which people, things, and ideas are given, serving degrees of place utility. An analysis of the role of transportation in urban, national, and international relationships. (1965-66 and alternate years.)

3 World Economies (3)

Description and comparison of differing regional economies—pastoral, agricultural, industrial; patterns of world distribution. (1964-65 and alternate years: fall—day.)

Gassaway

7 World Population and Settlement (3)

Population composition, structure, and distribution; characteristic world settlement patterns in terms of population organization. Assessment of factors contributing to population pressures, explosions and migrations, urban and rural settlement patterns and trends. (1964-65 and alternate years: spring—day.)

Gassaway

8 Regional Industrial Structures (3)

The nature of the industrial complex, types and distribution of industry, principles of industrial and economic development planning. (1964-65 and alternate years: fall—day.)

Westermann

9 Location of Industry (3)

Structure and development of the major world industries, industrial location requirements, principles of industrial equilibrium. (1964-65 and alternate years: spring—day.)

Westermann

10 The Common Market (3)

Analysis of the factors leading to the economic movement toward Western European cooperation and unity; the present status, problems, trends; the outlook for future development, American interests and American policies. (Summer 1964.)

Reinstein*

11 Urban Settlement (3-3)

Location, functions, and forms of cities; urban-rural relationships; the urban hierarchy; urban problems and the history of their development; the city of the future. (1964 and alternate years.)

12 Elements of Political Geography (3)

An introduction to systems of analyzing the political structures and functions of nations; political geographic theories and principles; interpretations and evaluations. (Fall—day.)

Van Valkenburg

13 Cultural Backgrounds of Western Europe (3)

Cultural backgrounds of Western European nations, with emphasis on the geographic and cultural development which have the greatest impact on the Western Alliance; significance of these factors to an understanding of contemporary American relations with the United States power position. (Summer 1964.)

Koenig*

14 Political Geography (3)

A study of differences in national character, structures; social behavior patterns and identity traits typical of various nations; difficulties these differences present in international relations and intercultural communications. (Fall—day.)

Van Valkenburg

15 World Political Geography (3)

A study of distributions of political systems, the major political units and associations of the world, factors which affect relative political power, areas of conflict and arbitrage. (Spring—day.)

Van Valkenburg

16 World States (3)

(Spring—day.)

Davis

* Recommended for summer 1964.
on page 10.

173 *Western Europe** (3)

Regional geography of Western Europe: terrain, climates, population, economic activities, resources. (Summer 1964.) Van Valkenburg

174 *The Mediterranean** (3)

(Not offered 1964-65.) Gassaway

175 *Africa** (3)

(Fall—day.)

176 *The Middle East** (3)

(Not offered 1964-65.)

161 *Latin America** (3)

(Not offered 1964-65.) Davis

164 *Communist China** (3)

(Fall—day.)

165 *Eastern and Southeastern Asia** (3)

(Not offered 1964-65.) Gassaway

166 *The Soviet Union** (3)

(1964-65 and alternate years—spring—day.)

169-70 *Field Trip to Western Europe* (3-3)

Five weeks of lectures, illustrated by visiting the places as they are. Discussed, covered, physical, economic, political, and social geography. Countries included in the trip: Field Trip to Western Europe are: England, The Netherlands, Belgium, France, Italy, Switzerland, and West Germany. (Summer 1964.) Van Valkenburg

171-74 *City Planning* (1-3)

Optimum designs for future cities; theory and techniques of planning; action and implementation; information systems for city planning; methods of analysis of urban data; the design of proposed urban development and renewal. (Academic year—evening.) Davis

175-76 *Regional Planning* (3-3)

Regional systems and subsystems; regional structures and functions; regional analysis; regional information systems; methods of economic and social planning; design of plans; government and implementation. (1965-66 and alternate years.) Davis

177-80 *Readings in Urban and Regional Development* (1-1)

(Academic year—as arranged.) Gassaway

189-90 *Readings in Geography* (1-1)

(Academic year—as arranged.)

191-204 *Theory of Regions* (3-3)

Area methods; comparison of the concepts: region, system, and field; delineation, measurement, and analysis. (Not offered 1964-65.)

THIRD GROUP†

201-2 *Seminar: History and Philosophy of Geography* (2-3)

(2-3)

A year course, credit is not given for the first half until the second half is completed. A study of the development of geographical thought and an attempt to develop a new, contemporary philosophy of geography. (1964-65 and alternate years—academic year—spring.) Van Valkenburg

* Regional focus. No prerequisites. For students who wish to continue the study of such a course, special courses in the departments of Geography, History, and Political Science are available. For example, Geography 185-86, *European History and Geography*; Geography 187, *Latin American History and Geography*; and Political Science 17, *Recent Trends in Latin American Politics and Government*.

† Under no circumstances should a student enroll in all three group courses.

- 25.6 *Area Data Collection and Analysis* (3-3)
A four course credit is not given for the first half until the second half is completed.
Lecture (1 hour), laboratory and field (18 hours). Sources of regional information;
methods and systems of data collection; quantitative and qualitative methods of analysis;
systems of synthesis. (1964-66 and alternate years)
- 25.74 *Seminar: Regional and Urban Planning* (3-3) Westernmann
A four course credit is not given for the first half until the second half is completed.
Analysis of the planning function, major problems confronting the planner, contemporary
status of planning, its areas of success and failure. (1964-65 and alternate
years academic year—spring)
- 25.12 *Seminar: Place and Culture* (3-3)
A study of the culture traits which characterize various ethnic groups and differentiate
the place associations. (1965-66 and alternate years)
- 25.14 *Seminar: Political Geography of Western Europe* (3) Van Valkenburg
Discussions centering on the political entities of Western Europe: their structure and
character, their interplay, their problems. (Summer 1964)
- 25.14 *Seminar: Western Europe in the North Atlantic Community* Alexander*
Communities (3)
Western Europe's role in the North Atlantic Community, geographic backgrounds,
trends for unity and disunity in Western Europe and in the community. (Summer
1964)
- 25.15 *Seminar: the Strategic Importance of Western Europe* (3) Allen*
Analysis of the economic factors which underlie Western Europe's present and potential
strategic importance; the military and political factors of her power position in
the world setting. (Summer 1964)
- 25.74 *Seminar: Problems of Developing Nations* (3-3)
Political societies and their disruptive, modernization, social change, and economic
development; problems of urban and regional planning, foreign aid programs.
(1965-66 and alternate years)
- 25.16 *Seminar: the Sino-Soviet Army* (3-3) Petrov
General concepts and economic potentials of the Sino-Soviet Bloc with emphasis on
Sino-Soviet hinterlands. Formation and development patterns of the Pacific countries.
Soviet, Outer Mongolia, Inner Mongolia, Manchuria, Soviet Central Asia and the
Far East, North Korea, and North Vietnam will be surveyed. (Academic year—autumn
1964)
- 25.96 *Research* (3-3)
(Academic year—as arranged)
- 25.99 *Thesis* (3-3)
The Staff
The Staff

COURSES OFFERED IN SPECIAL PROGRAM

In addition to the regular courses announced above, the University offers the following courses for students undertaking work toward the degree of Bachelor of Science in Geography, which is administered by the College of General Studies. For information concerning the degree in Geography, see the brochure on the subject.

GEOGRAPHY

- 21 *Introduction to Geography* (3)
22 *World Regions* (3)
25.16 *Physical Geography* (3-3)

* Recommended for students' field

124 *Land Capabilities* (3)

125 *Transportation Complexes* (3)

CARTOGRAPHY

1 *Map Interpretation* (3)

11 *Cartographic Drafting and Descriptive Geometry* (3)

12 *Topographic Surveying* (3)

13 *Higher Surveying* (3)

17-18 *Elementary Photogrammetry* (3-3)

110 *Map Projections* (2)

111 *Map Reproduction* (1)

155 *Elementary Geodesy* (3)

156 *Geodetic Astronomy* (3)

160 *Theory of Errors and Geodetic Adjustments* (3)

191-92 *Map and Chart Construction* (3-3)

Geology*

Professor Geza Teleki (Chairman)

Professorial Lecturers C. L. Christ, Michael Fleischer, H. T. Evans, Jr., I. G. Sohn, Nicholas Hutton

Associate Professors G. V. Carroll, J. W. Pierce

Associate Professorial Lecturers Daniel Appleman, P. M. Kier, J. T. Dutro, Jr., E. G. Kauffman

Associate Frederick Collier

Bachelor of Arts or Bachelor of Science with a major in Geology (Departmental): Prerequisite: the Arts and Letters or the Science curriculum, respectively, pages 14-15. The following first-group courses must be included: *Geology* 1-2, 12; *Chemistry* 1; 12; *Physics* 1-2 (or *Physics* 11 and 12, or 11 and 14); *Mathematics* 21 (for the degree of Bachelor of Arts); *Mathematics* 22 and 23 (for the degree of Bachelor of Science).

Required, in addition to the general requirements, pages 20-22, 23, 24-25, twenty-seven semester hours in *Geology* beyond first-group courses for the Bachelor of Arts degree; thirty-three for the Bachelor of Science degree. The work of the junior and senior years must be approved by the Department. Two foreign languages are recommended for students planning to do graduate work. *Philosophy* 121-22 is recommended as a senior year elective.

Master of Arts or Master of Science in the field of Geology: Prerequisite: the degree of Bachelor of Arts or Bachelor of Science, respectively, with a major in *Geology* from this University, or the equivalent.

Required: the general requirements, pages 27-30, including *Mathematics* 22 and 23 or the equivalent. Candidates must pass the Master's Examination (page 30) before registration for the second half of the thesis work. A reading knowledge examination in French, German, or Russian must be passed before the second half of the work is started.

* The Staff of Instruction is for the academic year 1963-64.

Master of the Science in the field of Geochemistry (an interdepartmental degree offered by the departments of Geology and Chemistry)—Prerequisite: the degree of Bachelor of Arts or Bachelor of Science, respectively, with a major in Chemistry or in Geology from this University, or the equivalent. Before admission to Master's candidacy, the student with an undergraduate major in Geology must demonstrate by credit or examination a knowledge of the content of Chemistry 21, 111, 112; Mathematics 22, 23; Physics 1-2, 51-52 (or former 11, 12, 13, 16; or 11, 14, 15, 16).

Required: the general requirements, pages 22, 29-30, including Chemistry 213; Geology 181, 241, 246, 249-50. All prospective Master's candidates must take qualifying examination in the fields of analytical and physical chemistry, marine geology, and sedimentation before the second half of the program is started. The Master's Examination (page 30) must be taken before registration for the second half of the thesis work. With permission of the interdepartmental committee on geochemistry the German language may be required by Russian.

Doctor of Philosophy.—See the Graduate Council Catalogue.

FIRST GROUP

1-2 *Introductory Geology* (3-3)

Lecture (2 hours), laboratory and field trip (12 hours). A survey course covering the principles of geology. Laboratory fee, \$6 a semester. (Academic year—day, summer 1964.)

The Staff

12 *Rocks, Fossils, and Minerals* (3)

Lecture (2 hours), laboratory (12 hours). Introduction to rocks, fossils, minerals, ores, gems, and other mineral deposits. Prerequisite: Geology 1 and high school chemistry, or permission of the instructor. Laboratory fee, \$8. (Spring—day.)

Carroll

22 *Physiography* (3)

Lecture (2 hours), laboratory (2 hours). Interpretative description of the features of the earth's surface; relief configurations of the world. Prerequisite: Geology 1 or permission of instructor. Laboratory fee, \$5. (Spring—day.)

Teleki

SECOND GROUP

191 *History of Geological Sciences* (2)

Lectures on the development of geological thought and the history of geological and related sciences. (Fall—day.)

Teleki

102 *Development of Scientific Thought* (3)

(Summer 1964.)

Teleki

107 *Dynamic Geology* (3)

Lecture (3 hours), recitation (1 hour). The interrelation of endogenic and exogenic forces in the processes of sedimentation and volcanism; geochemical and geophysical aspects of oroplineal and geosynclinal areas. Prerequisite: Geology 1; Physics 1-2 or former 11 and 12; or permission of the instructor. (Fall—day.)

The Staff

11-12 *Mineralogy* (3-3)

A year course; credit is not given for the first half until the second half has been completed (except for chemistry majors who may receive credit for the first half only). Lecture (2 hours), laboratory (13 hours). First half: morphological crystallography and elementary aspects of optical crystallography with their application to the identification of minerals. Second half: optical mineralogy; identification of nonopaque minerals by use of the polarizing microscope. Prerequisite: Geology 1 and 12; Physics 1-2 or former 11 and 12; or permission of the instructor. Laboratory fee, \$10 a semester. (Academic year—day.)

Carroll

115 *Petrography* (4)

Lecture (2 hours), laboratory (4 hours). Megascopic and microscopic identification and classification of common rocks. Prerequisite: Chemistry 11-12; Geology 111-12. Laboratory fee, \$10. (Fall—day.)

Carroll

- 116 *Sedimentary Petrography* (4) Pierce, Carroll
Lecture (2 hours), laboratory (4 hours). The mineralogy and chemistry of sedimentary rocks; identification, description, and classification of sedimentary rocks with microscopic and microscopical methods. Prerequisite: Chemistry 11-12, Geology 111-12. Laboratory fee, \$10. (Spring—day.)
- 117 *Introduction to Petrology* (3) Carroll
Lecture (2 hours), laboratory (4 hours). Lectures on petrogenetic theory with emphasis on igneous and metamorphic rocks; laboratory work on the diagnosis of rock groups by petrologic microscopic determination of mineralogical and textural characteristics. Prerequisite: Geology 115. Laboratory fee, \$10. (1965-66 and alternate years.)
- 122 *Structural Geology* (3) The Staff
Lecture (2 hours), laboratory and field trips as arranged. Genetic interpretation of geologic formations on the basis of their structures, with emphasis on application to geological field work. Prerequisite: Geology 1-2 or 1 and 12. (Spring—day.)
- 123 *Tectonics* (3) The Staff
Lecture (1 hour), laboratory (4 hours). Introduction to specialized techniques of structural analysis, and to tectonic theory. Prerequisite: Geology 122. Recommended: Applied Science 3. (Fall—evening.)
- 125 *Marine Geology* (3) Pierce
Lecture and map work. Principles of oceanography and submarine geology; geology of the deep sea, topography, coastal structure, sedimentary processes, and marine environments. Prerequisite for geology majors: Geology 1-2 or 1 and 12; for students in fields other than geology, permission of the instructor. (Fall—day.)
- 128 *Geomorphology* (4) Teleki
Lecture (2 hours), laboratory (2 hours), field trips as arranged. Nature and evolution of earth forms, interpretation of maps and aerial photographs. Prerequisite: Geology 22 and 107. (Spring—day.)
- 130 *Photointerpretation* (4) Pierce, Teleki
Lecture (2 hours), laboratory (3 hours). Principles of photogrammetry, interpretation of geomorphological and geological features on aerial photographs, evaluation of data with stereoscopic methods. Laboratory fee, \$10. (1965-66 and alternate years.)
- 151-52 *Invertebrate Paleontology* (3-3) Kauffman
Lecture (2 hours), laboratory (3 hours), field trips as arranged. Classification and evolution of fossil invertebrates; paleoecology of invertebrate organisms. Prerequisite: Geology 1-2 or 1 and 12. Laboratory fee, \$8 a semester. (Academic year—evening.)
- 154 *Vertebrate Paleontology* (3) Hotton
Lecture (2 hours), laboratory or field as arranged. General features of vertebrate morphology and evolution as illustrated by the fossil record; problems of paleoecology and adaptation, where appropriate. (Spring—evening.)
- 157 *Methods in Paleontology* (3) Sohn
An introduction to the principles and techniques of paleontological research, including the rules of zoological nomenclature. Prerequisite: Geology 151-52. (1965-66 and alternate years.)
- 163 *Sedimentation* (4) Pierce
Lecture (2 hours), laboratory (4 hours). Principles of sedimentation, analysis and interpretation of sedimentary processes and environments; laboratory experiments in the properties of sedimentary particles. Prerequisite: Geology 12 and 107. Laboratory fee, \$10. (Fall—evening.)
- 166 *Stratigraphy* (4) Pierce
Lecture (2 hours), laboratory (4 hours). Sedimentation, facies, evaluation of stratigraphic boundaries, principles of correlation, applied stratigraphic geology. Prerequisite: Geology 107, 115, 122, 163. (1965-66 and alternate years.)

17. *Regional Geology* (1)
Lecture (3 hours), recitation (1 hour). Lecture and recitation work on the regional distribution of geological formations and structures. This course may be repeated for credit. Prerequisite: Geology 107, 122, or permission of the instructor. (Fall—day.)

The Staff

18. *Oceanography I* (1)
Chemical and physical properties of sea water, movements of water masses, meteorological interrelations, ecology of marine plants and animals. Prerequisite: Chemistry 11-12, Geology 125, Physics 14 and 15. (Fall—day.)

The Staff

19. *Oceanography II* (1)
Boundary processes and interactions between sea water and the atmosphere, principles of dynamics and their application to estuarine and distribution of various industries of water masses, review of recent literature and problems. Prerequisite: Geology 101. (Spring—day.)

The Staff

20. *Laboratory Techniques I* (2)
Lecture (1 hour), laboratory (1 hour). An introduction to photographic procedures and techniques for paleontological and petrographic work. Laboratory fee, \$15. This course may be repeated for credit with the approval of the Department. (Fall—Saturday morning.)

The Staff

21. *Laboratory Techniques II* (2)
Lecture (1 hour), laboratory (1 hour). An introduction to laboratory machinery and techniques, preparation of thin sections, grinding and polishing techniques, fossil preparation, identification and handling of collections. Laboratory fee, \$15. This course may be repeated for credit with the approval of the Department. (Spring—Saturday morning.)

Collier

THIRD GROUP

22. *Geometries* (3)
Lecture (2 hours), laboratory (one evening). Application of statistics to geological or paleontological problems, quantitative and mathematical approach. Prerequisite: Mathematics 23 or permission of the instructor. Laboratory fee, \$10. (Spring—evening.)

Pierce

23. *Seminar in Geology* (3-9)
Special topics. Does not repeat itself and may be elected in successive years. (Area—various arrangements.)

The Staff

24. *X-ray Crystallography* (3)
The structure of crystals as determined by the X-ray method. (Fall—evening.)

Christ

25. *Crystal Chemistry** (3)
Chemistry of the solid state. Bonding and nomenclature and the role of crystalline structure in chemistry and mineralogy. (Spring—evening.)

Evans

26. *Coastal Morphology* (3)
Lecture (2 hours), laboratory (2 hours). Morphological analysis of the features and processes of coastal zones. Survey of the coastal zone types of the world. Prerequisite: Geology 125. (Spring—day.)

Tolaki

27. *Geochemistry** (3)
Principles and theories of the geochemical relationships and the distribution in the crust, rock and mineral systems. (1965-66 and alternate years.)

Fleischer

28. *Experimental Geochemistry* (3)
Recent advances in geochemistry, field chemical methods and their applications. Special topics. Does not repeat itself and may be repeated for credit. Prerequisite: Chemistry 11-12, Geology 241. (1965-66 and alternate years.)

The Staff

29. *Isotope Geology** (3)
Isotopic geology of geological phenomena by means of stable and unstable isotopes of elements and of changes in their abundance. (1965-66 and alternate years.)

The Staff

30. *Isotopes in Geology* (3)
Isotopes as an alternate technique in geology and chemistry, to be determined in conference with the instructor.

246 Marine Geochemistry (3)

Lecture (2 hours), laboratory (as arranged). Chemical composition and physical properties of sea water, chemical composition of marine sediments and their associations, thermodynamics of sea water, biochemical activity in the oceans, methods of analysis and problems of measuring. Prerequisite: Geology 241. Laboratory fee, \$18 (Spring—evening). The Staff

249-50 Seminar in Geochemistry (2-2)

Independent topics each semester. Can be elected for either semester. Does not repeat itself and can be reelected for credit. (Academic year—as arranged.) The Staff

251-52 Micropaleontology (4-4)

Lecture (2 hours), laboratory (as arranged). Identification with the binocular microscope of Ostracoda and other fossil micro-organisms. Micropaleontological techniques, paleontological research methods, taxonomy, and paleoecology. Age determination and correlation of stratigraphic units. Laboratory fee, \$12 a semester. (Academic year—evening.) Sohn

257-58 Seminar in Paleontology and Paleogeology (3-3)

Independent topics each semester. Can be elected for either semester. Does not repeat itself and can be reelected for credit. (Academic year—as arranged.) The Staff

267-68 Seminar in Stratigraphy (3-3)

Independent topics each semester. Can be elected for either semester. Does not repeat itself and can be reelected for credit. (Academic year—as arranged.) The Staff

295-96 Research (art.)

Research on problems approved by the Staff. Open to qualified students with advanced training. Laboratory fee, \$6 a semester hour. (Academic year—as arranged.) The Staff

299-300 Theses (3-3)

(Academic year—as arranged.) The Staff

Germanic Languages and Literatures *

Professors W. K. Legner (Chairman), Gretchen Rogers
Associate Professor J. C. King
Assistant Professors H. D. Osterle, Klaus Thoenelt
Associate Anne Cordero

Bachelor of Arts with a major in Germanic Languages and Literatures (Departmental).
Prerequisite: the Arts and Letters curriculum, page 14.

Required: in addition to the general requirements, pages 20-22, 24-25, German 51-52 plus eighteen semester hours in German courses, above the first group; reasonable proficiency in speaking and writing German; History 39-40 or the equivalent; six semester hours in Philosophy selected with the approval of the adviser. Majors in German are strongly advised to study French.

Master of Arts in Germanic Languages and Literatures.—Prerequisite: a Bachelor of

* The Staff of Instruction is for the academic year 1963-64

An degree with a major in Germanic Languages and Literatures from this University, or the equivalent.

Required: the general requirements, pages 27-28, 28-30, including a reading knowledge of French, and a thesis in the field of German literature or linguistics.

Master of Arts in the field of Linguistics (an interdepartmental degree offered by the Departments of Germanic Languages and Literatures and Romance Languages and Literatures).—Prerequisite: a Bachelor of Arts degree, preferably with a major in French, German, or Spanish at this University, or the equivalent, and the approval of candidacy by the Committee on Linguistic Study.

Required: the general requirements, pages 27-28, 28-30, including a thesis and twenty semester hours of second-group courses selected in consultation with the chairman of the department directing the Master's program and approved by the Committee in Linguistics. The candidate's program will normally be selected from courses in Anthropology, English, French, General Courses in Romance Languages and Literatures, German, Mathematics, Philosophy, Psychology, Spanish, and Statistics listed on pages 112-14.

Doctor of Philosophy.—See the Graduate Council Catalogue.

Bachelor of Arts in Education with a teaching field in German.—Prerequisite: the Education curriculum, page 16.
Required: the German option and the professional courses listed in the School of Education Catalogue.

FIRST GROUP

1. First-year German (3-3)

A year course; credit is not given for the first half until the second half is completed. The materials of German grammar; translation of easy prose. Three classroom periods a week plus one period of aural practice in electronic language workshop. Workshop fee, \$6 a semester. (First half: fall—day and evening; spring—day; summer 1964. Second half: fall—day, spring—day and evening; summer 1964.)

The Staff

2. Second-year German (3-3)

A year course; credit is not given for the first half until the second half is completed. Selections from modern German prose, continuation and review of grammar. Three classroom periods a week plus one period of aural practice in electronic language workshop. Workshop fee, \$6 a semester. Prerequisite: German 1-2 or two years of high school German. (First half: fall—day and evening; spring—day; summer 1964. Second half: fall—day, spring—day and evening; summer 1964.)

The Staff

3. Intensive First-year German (3-3)

A year course; credit is not given for the first half until the second half is completed. The course covers the same material as German 1-2, with greater depth because of increased attention to conversation, comprehension, reading, and writing. Five classroom periods a week plus one period of aural practice in electronic language workshop. Workshop fee, \$6 a semester. (A full-year—day.)

The Staff

4. Intensive Second-year German (3-3)

A year course; credit is not given for the first half until the second half is completed. The course covers the same material as German 3-4, with greater depth because of increased attention to conversation, comprehension, reading, and writing. Five classroom periods a week plus one period of aural practice in electronic language workshop. Workshop fee, \$6 a semester. (Official 1965-66.)

The Staff

5. German Conversation and Composition (3-3)

A year course; credit is not given for the first half until the second half is completed. The course covers the same material as German 3-4, with greater depth because of increased attention to conversation, comprehension, reading, and writing. Five classroom periods a week plus one period of aural practice in electronic language workshop. Workshop fee, \$6 a semester. (Official 1965-66.)

Oster's

6. German Conversation and Composition (3-3)

A year course; credit is not given for the first half until the second half is completed. The course covers the same material as German 3-4, with greater depth because of increased attention to conversation, comprehension, reading, and writing. Five classroom periods a week plus one period of aural practice in electronic language workshop. Workshop fee, \$6 a semester. (Official 1965-66.)

The Staff

Required: the German option and the professional courses listed in the School of Education Catalogue.

19 *German Readings for Nonmajor Students* (3-1)

Primarily for graduate students preparing for reading examinations. Undergraduate students admitted with permission of the instructor. No academic credit for graduate students. Prerequisite: German 4 or 47, or the equivalent. (Fall and spring—evening; summer 1964.)

51-52 *Introduction to German Literature* (3-3)

Prerequisite: German 4 or the equivalent. (Academic year—evening; summer 1964.)

SECOND GROUP

103-4 *Goethe's "Faust"—Parts I and II* (3-3)

(1964-65 and alternate years) academic year—evening

131-32 *German Literature of the 13th Century* (3-3)

The age of Lessing, Goethe, and Schiller. (1965-66 and alternate years)

141-42 *German Literature of the 19th Century* (3-3)

Romanticism, Biedermeier period, Young Germany, Realism. (1965-66 and alternate years)

151-52 *German Literature of the 20th Century* (3-3)

(1964-65 and alternate years) academic year—evening

179-80 *Advanced Composition for Undergraduate and Graduate Majors* (1-1)

(Academic year—as arranged.)

THIRD GROUP

201-2 *Middle High German* (3-3)

(1965-66 and alternate years)

205-6 *Gothic* (3-3)

Introduction to the comparative study of Germanic languages. (1964-65 and alternate years) academic year—day

209-10 *Old High German* (3-3)

(1964-65 and alternate years) academic year—day

213-14 *Old Norse* (3-3)

(1965-66 and alternate years)

219 *Teaching German in College* (3-1)

Methodology, observation, and apprenticeship in college classes and the language work shop. (Fall—as arranged.)

224-24 *Linguistic Analysis of Modern German* (3-3)

Treatment of phonetics, phonology, morphology, and syntax. (1966-67 and every third year.)

225-26 *Seminar: Linguistics* (3-3)

Bibliography, methodology, readings, and research problems. (1965-66 and every third year.)

227-28 *Sanskrit—Introduction to Indo-European Linguistics* (3-3)

Old Indo-European and literature. (1964-65 and alternate years; academic year—day)

229 *German Literature of the 15th and 16th Centuries* (3)

Transition from classical to humanistic literature. The eras of Humanism and the Renaissance as reflected in the principal literary works. (1965-66 and alternate years.)

- 230 **German Literature of the 17th Century (3)** Legner
Imitation of foreign models. The literary salons. Pietism. The beginnings of realism in the novel. (1963-66 and alternate years.)
- 231-32 **German Classicism (3-3)** Thoenelt
An advanced study and critique of the literature of the Goethezeit. Prerequisite: German 131-32 or the equivalent. (1964-65 and alternate years; academic year-evening.)
- 241-42 **Seminar: German Romanticism (2-2)** Thoenelt
Treatment of individual writers, groups, motifs, and tendencies. (1964-65 and alternate years; academic year-evening.)
- 251-52 **Seminar: Studies in 20th Century German Literature (3-3)** Osterle
Special projects in fiction, drama, poetry, and criticism. (1965-66 and alternate years.)
- 261-62 **German-English and German-American Literary Relations (3-3)** Osterle
Influence of individual writers, with emphasis on Shakespeare and Goethe. Comparison of the styles of major genres. Sociology of literature. (1964-65 and alternate years; academic year-evening.)
- 263-64 **Evolution of the French and the German Novel from the 17th to the 20th Century (3-3)** Thoenelt
Influences, analogies, and contrasts. Motif and style studies. (1965-66 and alternate years.)
- 271-72 **Seminar: German Literature (3-3)** The Staff
Bibliography, methodology, readings, and research problems. (1965-66 and alternate years.)
- 299-300 **Thesis (3-3)** The Staff
Required of all candidates for the Master's degree in German. (Academic year-evening.)

History *

- Professors E. L. Kaysor, Wood Gray, H. M. Morrison, R. H. Dawson (Chairman),
W. C. Davis, R. B. Thompson
- Professorial Lecturers R. P. Malbran, C. O. Kent
- Associate Professors R. C. Hudson, R. P. Sharkey
- Associate Professorial Lecturer J. F. Robinson, Jr.
- Assistant Professors C. J. Herbst, P. P. Hill, R. W. Kottan, Michael Gassner
- Bachelor of Arts with a major in History (Field of Study).—Prerequisite: the Arts and Letters curriculum, page 14, including History 99-100 and 71-72.
- Required: the general requirements, pages 20-22, 23-24, and the passing of the History major examination at the end of the senior year.
- The major, centered on the study of the rise, development, and survival, and the continuing changes of Western civilization, is attended by a major examination. Under the
- *On base of studies 1963-64.

guidance of an adviser the student will arrange his program in History to attain a balanced coverage of (1) the rise of civilization in Europe to the eve of the French Revolution, (2) the development of non-Western civilizations and their interaction with the Western world, (3) the historic problems of modern industrial civilization from the beginnings of the Industrial Revolution, and (4) the relations of the major nations of Europe and America in their world setting since the Napoleonic Wars. A six-hour research seminar to give training in fundamental techniques is a required part of each major's program, and a proseminar (History 199-200) is offered as a means of integrating the student's understanding of the continuity of Western civilization. For details relating to the administration and content of the major, see the pamphlet on this subject, which is available in the offices of the Dean of Columbian College of Arts and Sciences and the Chairman of the History Department.

American Thought and Civilization 101 American Civilization is recommended as a senior year elective for History majors.

Bachelor of Arts with a major in Latin American Civilization (Field of Study).—Prerequisite: the Arts and Letters curriculum, see page 14.

Required: the general requirements, pages 20-22, 23-24, and the passing of the Latin American Civilization major examination at the end of the senior year. The concentrated field of knowledge upon which the student will be examined includes political and social history, economic development, governmental structures and international relations, and the principal literary works and writers of the Latin American republics. The Department of History provides a proseminar (History 197-98) intended to assist the student in preparing himself for the major examination. For further details, see the pamphlet, which is available in the Office of the Dean of Columbian College of Arts and Sciences.

American Thought and Civilization 101 American Civilization is recommended as a senior year elective for Latin American Civilization majors.

Master of Arts in the field of History.—Prerequisite: the degree of Bachelor of Arts with a major in History from this University, or the equivalent, and the approval of the Department.

Required: the general requirements, pages 27-28, 28-30. Of the twenty-four semester hours of required second- and third-group courses (exclusive of the thesis), at least six must be in third-group history courses; a maximum of six may be in a closely related field outside the Department of History as approved by the Department. Master's candidates are responsible for arranging with instructors of second-group courses for extra work in order to receive graduate credit for such courses.

Master of Arts in the field of Latin American Civilization.—Prerequisite: the degree of Bachelor of Arts with a major in Latin American Civilization from this University, or the equivalent.

Required: the general requirements, pages 27-28, 28-30. Course work and the comprehensive examinations will embrace political and social history, governmental structures and international relations, economic development, and principal literary works of Latin America. The thesis may be written in any one of these four fields. All courses must be approved in advance by the adviser.

Doctor of Philosophy.—See the Graduate Council Catalogue.

Bachelor of Arts in Education with a teaching field in History.—Prerequisite: the Education curriculum, page 16.

Required: the History option and the professional courses listed in the School of Education Catalogue.

FIRST GROUP

39-40 The Development of European Civilization

(3-3)

Primarily for freshmen. *First half:* the political, social, economic, and cultural history of the Old World from ancient times to 1715. *Second half:* from 1715 to the present. (Academic year—day and evening; summer 1964.)

Kayser, Herber, Kenny

- 71-72 *The Development of the Civilization of the United States* (3-3) Haskett, Hill
 Primarily for sophomores. *First half*: the political, social, economic, and cultural forces of the United States in their world setting from 1492 to 1865. *Second half*: from 1865 to the present. (Academic year—day and evening; summer 1964.)

SECOND GROUP*

- 105-6 *Introduction to the History of Science* (3-3) Multhaupt
First half: the ancient natural philosophy and the growth of special sciences through the 17th-18th century scientific revolution. *Second half*: the main lines of development of astronomy, physics, chemistry, biology, and medicine from the mid-18th century to the scientific revolution of the early 20th century. Prerequisite: History 39-40 or a background in science. (Academic year—evening.)
- 109-10 *Ancient History* (3-3) Kayser
 The political, social, and intellectual aspects will be considered. *First half*: the ancient Near East and Greece. *Second half*: Rome. (Academic year—day.)
- 111-12 *Medieval History* (3-3) Kayser
 The political, social, and intellectual aspects will be considered. *First half*: from the 4th to the 12th century. *Second half*: from the 13th through the 16th century. (Not offered 1964-65.)
- 130 *Nationalism* (3) Kayser
 The historical evolution of modern nationalism. (Summer 1964.)
- 131-32 *History of Germany* (3-3) Herber
 The political, social, and cultural development of the German people. *First half*: from the Reformation to 1871. *Second half*: from 1871 to the present. (Academic year—day.)
- 141-42 *History of France* (3-3) Herber
 A survey of the political, social, and cultural history of France. *First half*: from earliest times to 1815. *Second half*: from 1815 to the present. (Not offered 1964-65.)
- 143-46 *History of Russia* (3-3) Thompson
 A 1100-year survey of the rise and revolution of Russia. *First half*: Russia under the Old Regime, 800-1900. *Second half*: Revolution and Soviet rule, 1900-1960. (Academic year—day.)
- 147 *Economic History of Europe* (3) Sharkey
 European economic development since the Middle Ages with particular emphasis on the period following the Industrial Revolution. The evolution of capitalism and its varying impact upon the societies of Europe will be treated. (Fall—day.)
- 148 *Oversea Expansion of Europe* (3) Dayison
 International rivalries and the impact of European civilization in Africa and the Pacific basin since 1500, with emphasis on the 19th and 20th centuries. (Not offered 1964-65.)
- 149-50 *European Diplomatic History* (3-3) Dayison
 Background of the European state system and of diplomatic practices and relations since the Congress of Vienna, with emphasis on the policies and actions of the great powers and their spokesmen. *First half*: 1815 to 1871. *Second half*: since 1871. (First half: 1965-66 and alternate years. *Second half*: spring—evening.)
- 151-52 *History of England and Great Britain* (3-3) Kenny
 A general survey of the development of English civilization and its impact on Western culture. *First half*: to 1600. *Second half*: since 1600. (Academic year—day and evening; summer 1964.)
- *History 39-40 is prerequisite to courses 105 through 107 and 109 through 112; History 71-72, to courses 111 through 112; either History 39-40 or 71-72, to courses 161 through 166.

- 161 *Ancient Americans* (3)
A study of the Maya, Aztec, Inca, and other early civilizations of North and South America. (Fall—day.) Davis
- 162 *Iberian Background of Latin America* (3)
History of Spain and Portugal, with emphasis on developments leading to the rise and decline of the Spanish and Portuguese empires. (Not offered 1964-65.) Davis
- 163 *Colonial Latin America* (3)
Political, economic, social, and institutional developments in Spanish and Portuguese America from the conquest through the wars of independence. (Fall—evening.) Davis
- 164 *South America since Independence* (3)
Development of the independent South American states in the 19th and 20th centuries. (Alternate spring and summer terms: spring—day; summer 1964.) Davis
- 166 *Mexico and the Caribbean since Independence* (3)
A survey of the republics of Mexico, Central America, and the Caribbean islands. (Alternate spring and summer terms: summer 1965; spring 1966.) Davis
- 170 *American Colonial History* (3)
The settlement of the British colonies, the development of provincial institutions, and the emergence of an American civilization in the 17th and 18th centuries. (Spring—day; summer 1964.) Haskett
- 171-72 *Social History of the United States* (3-3)
Daily life, institutions, intellectual and artistic achievements of the Agrarian Era, 1607-1861; and the Urban/Industrial Era, 1861 to the present time. (Academic year—morning; summer 1964.) Gray
- 173 *Representative Americans* (3)
A biographical approach to national history. Some fifty significant and pivotal personalities in the development of the United States in government, business, science, religion, journalism, the arts, and social reform. (Fall—day.) Gray
- 174 *Economic History of the United States* (3)
An analysis of the process of economic growth in the United States from Colonial times to the present. The development of various sectors in the economy such as agriculture, transportation, manufacturing, and banking will be treated and their interrelationships stressed. (Spring—day.) Sharkey
- 175-76 *Political and Constitutional History of the United States* (3-3)
First half: to the eve of the Civil War. *Second half:* the Civil War to 1910. (Academic year—day; summer 1964—History 175 (3).) Haskett
- 177 *The South* (3)
Rise of the plantation system and slavery; the intersectional conflict; and the problems and progress of the New South. (Spring—day.) Robertson
- 178 *The West* (3)
The role of the frontier in American history. (Not offered 1964-65.) Robertson
- 179 *The Civil War* (3)
A survey of the causative factors leading to Civil War and of the social, political, military, economic, and diplomatic aspects of the War itself; the immediate and long-range effects of the War on American life. (Fall—day.) Merriman, Hill
- 181-182 *Diplomatic History of the United States* (3-4)
Tendencies toward isolation, expansion, and collectivism; disputes with foreign countries and their settlement; and the activities of the American secretaries of state and diplomatic agents. *First half:* to 1898. *Second half:* since 1898. (Academic year—day and evening.) Merriman
- 183 *Overseas Expansion of the United States* (3)
The political, economic, social, and cultural life of our outlying possessions. (Spring—day.)

34. *Canada and the United States* (3)
The historical background and many trends in the relationship of the two English-speaking peoples of North America. (Fall—day.)
Merriman
35. *History of Modern China* (3)
China since 1840, with particular attention given to political developments. (Fall—day; summer 1964.)
Gassler
36. *Last Asia in World Affairs* (3)
The history of Chinese and Japanese relations with the West, emphasizing the roles of China and Japan in international politics from the middle of the 19th century to the present. (Spring—day.)
Gassler
37. *History of India* (3)
The civilization of India and her neighbors from the beginnings to independence. (Not offered 1964-65.)
Thompson
38. *Current History* (1-1)
Contemporary events in their world setting. (Not offered 1964-65.)
Davison
39. *History of the Near East* (4)
The Byzantine, Arab, Persian, and Islamic backgrounds of Near Eastern history; the rise and decline of the Ottoman Empire; the action of European powers in the area; and the Ottoman breakup into the Turkish Republic and other successor states. 1964-65 and alternate years. (fall—evening.)
Davison
40. *History of East Asia* (3-3)
The civilizations of China and Japan, with emphasis on cultural development and social organization. First half: from the beginnings to about 1800. Second half: the traditional societies on the eve of the modern era, and their responses to Western cultural influences since the middle of the 19th century. (Academic year—day and evening; summer 1964—History 196 (3-1).)
Gassler
41. *Proseminar in Latin American Civilization* (3-3)
Reading course for coordination and review. Open only to majors in Latin American Civilization. (Academic year—as arranged.)
Davis, Roll, Simmons
42. *Proseminar: Readings for the History Major* (3-3)
Open to majors in History. Readings and discussions on many trends in the history of Western civilization, in its world setting, including representative selections from the classics of historical literature. (Academic year—day and evening.)
Thompson, Gray

THIRD GROUP*

41. *Reading Course in Medieval History* (3-3)
Open only for graduate students. (Not offered 1964-65.)
Herber
42. *Seminar in Modern European History* (3-3)
Academic year—evening.)
Davisson
43. *Reading Course in Modern European History* (3)
For graduate students. (Fall—day.)
Thompson
44. *Seminar: Eurasian History* (3-3)
Academic year—day.)
Thompson
45. *Reading Course in Russian History* (3-3)
For graduate students. (Academic year—evening.)
Davisson
46. *Seminar: European Diplomatic History* (3)
Spring—day.)
Davisson

* If the instructor is required for registration in each third-group course.

- 251-52 *Seminar: English History* (3-3)
(Academic year—day.) Kenly
- 261-62 *Seminar: Latin American History* (3-3)
(First half: not offered 1964-65. Second half: spring—day.) Davis
- 271-72 *Seminar: Social History of the United States* (3-3)
(Academic year—day.) Gray
- 273-74 *Reading Course in American Social History* (3-3)
(First half: spring—day. Second half: not offered 1964-65.) Gray
- 275-76 *Seminar: American Political and Constitutional History*
(3-3) Haskett
- (Academic year—evening.) Haskett
- 277-78 *Reading Course in American Political and Constitutional History* (3-3)
For graduate students. (First half: 1964-65 and alternate years: fall—day. Second half: 1965-66 and alternate years—as arranged.) Sharkey
- 279-80 *Reading Course in Economic History* (3-3)
(Academic year—evening.) Merriman
- 281-82 *Seminar: Diplomatic History of the United States* (3-3)
(Academic year—day.) Merriman
- 283-86 *Reading Course in American Diplomatic History* (3-3)
For graduate students. (Academic year—as arranged.)
- 287 *Seminar: Background of the Chinese Revolution** (3) (JAU)
To be offered at the downtown campus of American University, as course number 75668. (Fall—evening.) The Staff
- 291-92 *Seminar* (3-3)
Prerequisite: approval of the Department. (Academic year—as arranged; summer 1964—History 292 (31).) Davison
- 294 *Seminar: History of the Modern Near East* (3)
(Fall—evening.) Gaster
- 295-96 *Seminar: History of the Modern Far East* (3-3)
(Academic year—day.) The Staff
- 299-300 *Thesis* (3-3)
Required of all candidates for the Master's degree specializing in history.
(Academic year—as arranged; summer 1964.) Aca

* Offered jointly by The George Washington University and American University. Courses offered at GWU will be designated "JGU", courses offered at AU will be designated "JAU".
Classes offered at this University. GWU students

Journalism*

Professor R. P. Schlachach, Jr. (Chairman)
Associate Professor R. C. Willson

Lecturers F. L. Dennis, J. V. Hinkel, Louis Robinson, T. R. Smith

Bachelor of Arts with a major in Journalism (Departmental).—Prerequisite: the Arts and Letters curriculum, page 14, including English 51-52 or 71-72, History 71-72, Political Science 9-10, and Journalism 71-72.

- Required:
- (1) The general requirements, pages 20-22, 24-25.
 - (2) Twenty-four hours of second group courses in Journalism, as follows: (a) Journalism 111, 196, 198; (b) nine hours chosen from Journalism 121, 133, 137, 144, 151; (c) six hours chosen from Journalism 115, 140, 142, 143, 145.
 - (3) Twelve hours of second group courses, chosen in consultation with the major adviser, in one other department of Colbyan College of Arts and Sciences. Students selecting science may take courses in more than one department.
- American Thought and Civilization 101 American Civilization is recommended as a senior-year elective for Journalism majors.

FIRST GROUP

- 71-72 Journalism in American Society (3-3) Willson
Evolution of newspapers and other media in relation to political, social, and economic life; the concept of press freedom; problems of contemporary journalism—with special emphasis on press-government relations. (Academic year—day and evening.)

SECOND GROUP

- 11 Reporting (3) Schlachach
Instruction and classroom practice in gathering, evaluating, and writing news; emphasis on newspapers, other media considered. (Fall—day; spring—evening.)
- 12 Editing and Make-up (3) Schlachach
Editing of news and other material for publication, typography and display; use of pictures and other graphic presentations. (Fall—day.)
- 13 Advanced Reporting: Magazine Feature Articles (3) Willson
Instruction and practice in writing magazine articles, material for which is obtained through independent investigation. (Spring—day.)
- 14 Advanced Reporting: Community News (3) Schlachach
Instruction and practice in coverage and writing of local news. (Spring—day.)
- 15 Advanced Reporting: National Affairs (3) Schlachach
Instruction and practice in coverage and writing of federal government news from the point of view of the press association. (Not offered 1964-65.)
- 16 Photojournalism (3) Smith
Photographic techniques affecting publication, the illustration and the story angle, standards of judgment in selection and use of pictures, captions, cutting technique, cropping for effective reproduction. (Spring—evening.)

*The Staff of Instruction is for the academic year 1963-64.

142 *Retail Newspaper Advertising* (3)

Retail newspaper advertising management, coordination of newspaper advertising with retail sales patterns, advertising relationships, copy preparation, production methods. (Spring—evening.) Robinson

143 *Industrial Communications* (3)

An introduction to the field of corporate journalism. Writing and editing the employee magazine. Preparation of annual reports. Editing stockholder publications and external house organs. (Not offered 1964-65.) Willson

144 *Advanced Reporting: the Arts and Sciences* (3)

Instruction and practice in writing articles for publication in such fields as the arts, business and economics, science, and technology. (Fall—evening.) Willson

145 *Principles and Problems of Public Relations* (3)

Principles, problems, and ethics of public relations for government agencies, commercial establishments, educational and other public institutions. Case histories of successful programs. (Fall—Saturday morning.) Hinkel

151 *Editorial Writing* (3)

Instruction and practice in writing of editorials on public affairs. (Fall—day.) Schlalich

196 *Seminar* (3)

For journalism majors only. Research in areas relating journalism to secondary fields of study. (Spring—as arranged.) Schlalich

198 *Law of the Press* (3)

Freedom of the press, censorship, legislative controls, publications as contempt of court, copyright, news gathering agencies, labor law and the newspaper business, law of libel, privileged matter, fair comment on public characters, right of privacy. (Fall—Saturday morning.) Dennis

Linguistics—Graduate Study

COMMITTEE ON LINGUISTIC STUDY

J. C. Allee, Jr. (Chairman), W. G. Cable, P. E. Gallagher, J. C. King, G. E. McSpadden, N. D. Nelson

Columbia College offers an interdepartmental Master of Arts field in Linguistics which is directed by the Department of German Languages and Literatures and the Department of Romance Languages and Literatures. Interested students should consult the Chairman of the Committee on Linguistic Study and the Chairman of the department concerned.

For information concerning work toward the degree of Doctor of Philosophy, see the Graduate Council Catalogue.

There is no undergraduate major in the field of Linguistics.

The candidate's program will normally be selected from the following courses:

ENGLISH

125 *Introduction to English Linguistics* (3)

Allee

223-24 Old English (3-4)

Allee

GERMANIC LANGUAGES AND LITERATURES

201-2 Middle High German (3-4)

Legner

205-6 Gothic (3-3)

Legner

209-10 Old High German (3-4)

King

213-14 Old Norse (3-3)

Allee

223-24 Linguistic Analysis of Modern German (3-3)

King

225-26 Seminar: Linguistics (3-3)

King, Allee

227-28 Sanskrit—Introduction to Indo-European Linguistics (3-3)

King

MATHEMATICS

121 Introduction to Mathematical Logic (3)

Nelson

122 Introduction to Abstract Algebra (3)

The Staff

124 Introduction to Matrix Theory (3)

The Staff

201-2 Mathematical Logic (2-3)

Nelson

PHILOSOPHY

120 Philosophy of Language (3)

Schlagel

PSYCHOLOGY

115 Psychology of Language and Communication (3)

Mosel

ROMANCE LANGUAGES AND LITERATURES

FRENCH

211 Problems of Pronunciation and Intonation (3)

Vigneras

212 Historical French Grammar (3)

Vigneras

213-14 Old French (4-4)

Vigneras

SPANISH

203 Problems of Pronunciation and Intonation (3)

McSpadden

212 Historical Spanish Grammar (3)

McSpadden

214 Old Spanish (3)

McSpadden

GENERAL COURSES IN ROMANCE LANGUAGES AND LITERATURES

270 Experimental Phonetics (3)

McSpadden

279 Introduction to Romance Philology and Linguistics (3)

McSpadden

SOCIOLOGY AND ANTHROPOLOGY

ANTHROPOLOGY

161 Language and Culture (3)

Gallagher

193 *Anthropological Methods* (3)

Campbell

STATISTICS

271-72 *Statistical Information Theory* (3-3)

Kellback

Mathematics*

Professors E. E. Johnston, Florence Meats, N. D. Nelson (Chairman), T. P. G. Liverman, N. A. Wiegmann

Professorial Lecturers W. H. Marlow, D. M. Dribin

Associate Professors W. A. Smith, Hewitt Kenyon, Ludvik Janos (Visiting)

Associate Professorial Lecturer Joseph Blum

Assistant Professors R. Z. Vause, Geza Schay

Lecturers Mahel Morris, A. J. Ziffer

Bachelor of Arts or Bachelor of Science with a major in Mathematics (Degree awarded) Prerequisite: the Arts and Letters or the Science curriculum, respectively, pages 14-15. Required: in addition to the general requirements, pages 20-22, 23, 24-25, twenty-four semester hours of Mathematics of approved second- and third-group courses.

Master of Arts or Master of Science in the field of Mathematics—Prerequisite: a Bachelor of Arts or Bachelor of Science degree, respectively, with a major in Mathematics at this University, or the equivalent.

Required: the general requirements, pages 27-30.

Master of Arts in the field of Linguistics—See pages 112-14 and the requirements of German, Languages and Literatures and Romance Languages and Literatures.

Doctor of Philosophy—See the Graduate Council Catalogue.

Bachelor of Arts in Education with a teaching field in Mathematics—Prerequisite: the Education curriculum, page 16.

Required: the Mathematics option and the professional courses listed in the School of Education Catalogue.

FIRST GROUP†

3 *College Algebra* (3)

Exponents and logarithms; linear equations; complex numbers; quadratic equations; introduction to theory of equations; mathematical induction and the binomial theorem; permutations, combinations, and probability; determinants; progressions. Prerequisite: one year each of high school algebra and high school geometry. (Fall and spring—day and evening; summer 1964.)

The Staff

6 *Plane Trigonometry* (3)

Prerequisite: two years of high school algebra and one year of high school geometry. at Mathematics 5. Two concurrent registration quarters. (Fall and spring—day and evening; summer 1964.)

The Staff

* The Staff of Instruction in the Mathematics area (1963-64)

† All students must register for Mathematics 5, 6, 8, 10, 12, or 14.

† New students registering for Mathematics 5, 6, 8, 10, 12, or 14 are required to take a placement examination.

9 *General Mathematics I* (3)

The Staff
For those students in the School of Education or others electing Mathematics 9 and 10 as a terminal sequence in mathematics. Propositional logic and truth values; the number system, number bases, arithmetical computation; algebraic functions; topics from plane geometry. Prerequisite: two years of high school mathematics. Not open to students who have had former Mathematics 2. (Fall and spring—day and evening; summer 1964.)

10 *General Mathematics II* (3)

The Staff
An introduction to matrices and vector spaces; non-Euclidean geometry; introduction to concepts of the calculus. Prerequisite: Mathematics 9 or former 2. (Fall—evening; spring—day and evening; summer 1964.)

11 *Finite Mathematics I* (3)

The Staff
Finite value commutatives and switching circuits, partitions and counting, probability theory. Prerequisite: two years of high school mathematics. (Fall—day and evening; summer 1964.)

12 *Finite Mathematics II* (3)

The Staff
Vectors and matrices, mathematics of finance and accounting, linear programming, introduction to game theory. Prerequisite: Mathematics 11. (Spring—day and evening; summer 1964.)

21 *Calculus I* (3)

The Staff
Elementary concepts of analysis: geometry. Differentiation and integration of algebraic functions with applications. Prerequisite: Mathematics 3 and 6, or two years of high school algebra, one year of high school geometry, and one-half year of high school trigonometry; or the equivalent. (Fall and spring—day and evening; summer 1964.)

22 *Calculus II* (3)

The Staff
Differentiation and integration of transcendental functions and applications, topics in plane geometry, techniques of integration. Prerequisite: Mathematics 21. (Fall and spring—day and evening; summer 1964.)

23 *Calculus III* (3)

The Staff
Vector concepts, improper integrals, polar coordinates, and infinite series. Prerequisite: Mathematics 22. (Fall and spring—day and evening; summer 1964.)

24 *Calculus IV* (3)

The Staff
Multiple integration and partial differentiation with applications, vectors and solid geometry, differential equations. Prerequisite: Mathematics 23. (Fall and spring—day and evening; summer 1964.)

25 *Calculus I and II* (6)

The Staff
The equivalent of Mathematics 21 and 22. (Fall—day.)

26 *Calculus III and IV* (6)

The Staff
The equivalent of Mathematics 23 and 24. (Spring—day.)

SECOND GROUP*

13 *Introduction to Mathematical Logic* (3)

Nelson
Development of propositional and predicate calculi, basic semantic concepts, elementary recursive set theory, Boolean algebra. Prerequisite: Mathematics 14 or former 31, or Philosophy 121. (Fall—evening.)

14 *Foundational Concepts of Mathematics* (3)

Nelson
Elementary set theory, cardinal and ordinal arithmetic, foundations of the real number system. Prerequisite: Mathematics 13 or permission of the instructor. (Not offered 1964-65.)

15 *Introduction to Topology* (3)

Kenyon
Metric spaces, compactness, connectedness, separability, and other topological concepts. Prerequisite: Mathematics 13, 14, and 15. (Not offered 1964-65.)

*The Second Group is a prerequisite for the Mathematics 21-24 sequence. It is also required for the Mathematics 13, 14, and 15 sequence. Prerequisite: a minimum concentration in the Department of Mathematics. Each year's program of these courses.

- 111 *Mathematics for Engineers and Physicists I* (3)
Differential equations, linear algebra. (Fall and spring—day and evening; summer 1964.) The Staff
- 112 *Mathematics for Engineers and Physicists II* (3)
Fourier series, Laplace transformation, partial differential equations. Prerequisite: Mathematics 111 or former 132. (Fall and spring—day and evening; summer 1964.) The Staff
- 120 *Introduction to Theory of Numbers* (3)
(1965-66 and alternate years.) The Staff
- 122 *Introduction to Abstract Algebra* (3)
(Fall—evening; spring—day; summer 1964.) The Staff
- 124 *Introduction to Matrix Theory* (3)
Elementary theory of finite vector spaces, determinants, equivalence, matrices with polynomial elements, singularity of matrices. (Fall—day; spring—evening; summer 1964.) The Staff
- 127 *Foundations of Geometry* (3)
Alternative postulational developments of Euclidean geometry. Non-Euclidean geometries. (Spring—evening.) The Staff
- 134 *Introduction to Boundary Value Problems* (3)
Prerequisite: Mathematics 111 or former 131 or 142. (Spring—day) The Staff
- 135 *Projective Geometry* (3)
(Fall—evening.) The Staff
- 139 *Advanced Calculus I* (4)
Limits, continuity, real number system, mean value theorems, partial differentiation, implicit function theorems, transformations, and mappings. (Fall—evening; spring—day; summer 1964.) The Staff
- 140 *Advanced Calculus II* (3)
Vector fields, multiple integrals, line and surface integrals, point set theory, theory of manifolds, improper integrals. Prerequisite: Mathematics 139. (Spring—evening; summer 1964.) The Staff
- 141 *Introduction to Infinite Series* (3)
(Fall—evening.) The Staff
- 142 *Theory of Differential Equations* (3)
Prerequisite: Mathematics 139. (Fall—day) Math
- 153 *Introduction to Numerical Analysis* (3)
(Fall—evening.) The Staff
- 157 *Introduction to Complex Variable Theory* (3)
(Fall—day.)
- 167 *Fourier Series and Spherical Harmonics* (3)
Prerequisite: Mathematics 111 or former 132. (Not offered 1964-65.)

THIRD GROUP

- 201-2 *Mathematical Logic* (3-3)
(1965-66 and alternate years.) The Staff
- 220 *Theory of Numbers* (3)
(1965-66 and alternate years.) The Staff
- 247-33 *Theory of Functions of a Complex Variable* (3-3)
A year course; credit is not given for the first half until the second half is completed. (1965-66 and alternate years.) The Staff

- 242 *Infinite Series* (3)
(Spring—evening.) Mears
- 243-44 *Numerical Analysis* (3-3)
(1965-66 and alternate years.) Marlow
- 249 *Ordinary Differential Equations* (3)
(Fall—evening.) The Staff
- 250 *Integral Equations* (3)
(Not offered 1964-65.)
- 251-52 *Theory of Functions of a Real Variable* (3-3)
(Academic year—day.) The Staff
- 255 *Differential Geometry* (3)
(Not offered 1964-65.) Dribin
- 256 *Introduction to Algebraic Geometry* (3)
(1965-66 and alternate years.) Dribin
- 257 *Theory of Groups* (3)
(Not offered 1964-65.) Johnston
- 261 *Generalized Functions and Operational Methods* (3)
Theory of generalized functions in one variable. Operational calculus of generalized functions. Applications to differential equations and Fourier analysis. Prerequisite: Mathematics 140. (1965-66 and alternate years.) Liverman
- 262 *Advanced Operational Methods* (3)
Generalized functions on test spaces of analytic functions. Operational calculus in several variables. Applications to partial differential and convolution equations of applied mathematics. Prerequisite: Mathematics 261. (1965-66 and alternate years.) Liverman
- 265-66 *Modern Algebra* (3-3)
Fundamental concepts of theory of groups, rings and fields. Theory of finite fields, vector spaces, Galois groups, factorization theory in Gaussian domains, and groups with operators. (Academic year—evening.) Wiegmann
- 267 *Topics in Matrix Theory* (3)
Theory of linear transformations (vector spaces over a division ring), advanced classical theory, matrix presentation of groups and rings, special topics as time allows. Prerequisite: Mathematics 144 and not elementary knowledge of groups, rings, and fields. (1965-66 and alternate years.) Wiegmann
- 268 *Calculus of Variations* (3)
(Fall—evening.)
- 270 *Tensor Analysis* (3)
(Summer 1964.) Janos
- 272 *Hilbert Space* (3)
(Fall—evening.) Schay
- 277 *Partial Differential Equations* (3)
(Spring—evening.) Schay
- 281-82 *Topology* (3-3)
(Academic year—evening.) Schav
- 291-92 *Seminar* (3-3)
(Academic year—day.) Kenyon
- 295-96 *Reading and Research* (3-3)
(Academic year—as arranged.) The Staff
- 299-300 *Thesis* (3-3)
(Academic year—as arranged), Summer 1964. The Staff

Microbiology*

Professors A. M. Griffin, Mary Robbins, R. C. Parlett (Chairman)
Associate Professor Rudolph Hugh
Assistant Professors Elizabeth O'Hern, Lewis Afrontz

Master of Arts or Master of Science in the field of Microbiology—Prerequisite: a Bachelor of Arts or a Bachelor of Science degree, respectively, from this University, or an equivalent, with a major in Biology, Botany, Chemistry, or Zoology. The undergraduate program must include the following courses or the equivalent: Biology 1-2; Chemistry 11-12, 31, 22, 151-52; Physics 1-2 or former 11, 12; Zoology 103-4.

Required: the general requirements, pages 27-30. The thirty semester hours must include (if not presented for admission) Microbiology 211 and 212, 249-50, 293-94, 295-96, and Biochemistry 221-22. The remaining courses are to be selected from Microbiology 232, 234, and 295-96. The student with much microbiological background may substitute for credit one or more courses from the following: cytology, genetics, cell physiology, immunology, histology, biostatistics, and protozoology. It is not always possible to arrange courses and research so that the student can be assured of completing all required work in one academic year.

Doctor of Philosophy—See the Graduate Council Catalogue

209 Medical Microbiology

Lecture (4 hours), laboratory (10 hours). For medical students. Bacteria, rickettsiae, viruses, yeasts, molds, protozoa, and metazoa which relate to the health and disease of man—cultural study of most important forms; methods of diagnosis by microscopic, cultural, serological, and animal reactions; theory and methods of immunology; vaccines, serums, antibiotics. (Fall—as arranged.) Parlett and Staff

211 Microbiology (4)

Lecture (2 hours), laboratory (4 hours). Graduate course on the study of bacteria, fungi, rickettsiae and viruses. Prerequisite: any biological laboratory science, Chemistry 151-52. Laboratory fee, \$16. (Fall—day.) The Staff

212 Pathogenic Microbiology (4)

Lecture (2 hours), laboratory (4 hours). Continuation of 211 with emphasis upon the harmful activities of microorganisms. Prerequisite: Microbiology 211 or the equivalent. Laboratory fee, \$16. (Spring—day.) The Staff

217 Advanced Mycology (4)

Lecture (2 hours), laboratory (4 hours). Advanced study of the fungi, emphasizing culturing and determinative techniques. Prerequisite: Microbiology 211 or the equivalent. Laboratory fee, \$16. (1965-66 and alternate years.) O'Hern

225 Microbial Chemistry and Physiology (3)

A lecture course. The biochemical features peculiar to various microorganisms, especially bacteria—are described and are compared with those of the animal cell. Includes discussion of the use of microorganisms in the elucidation of problems in biochemistry. Prerequisite: Biochemistry 221-22 or the equivalent. Microbiology 211 or the equivalent is recommended. (1965-66 and alternate years.) Afrontz

227 Microbial Pharmacology (2)

A lecture course describing the interactions of drugs and microorganisms—action of drugs on microbes, resistance of microbes to drugs, metabolism of drugs by microbes. Includes discussion of the selective action of drugs toward microbial and animal cells. Prerequisite: Microbiology 225 or permission of the instructor. (1964-65 and alternate years.) Afrontz

*The field of Microbiology in the old catalogue, 1963-64.

- 240 *Statistics and Microbiology* (3-3) Griffin
The application of statistical methods to the problems of microbiology. For graduate students. Prerequisite: Elementary college algebra. (Spring—as arranged.)
- 252 *Immunology and Immunochimistry* (4) Parlett
Preparation and testing of serological materials. Demonstration of basic serological phenomena. Prerequisite: Microbiology 211. Laboratory fee, \$16. (1964-65 and alternate years: spring—as arranged.)
- 254 *Virology* (4) Riddins
Study of viruses and rickettsiae. Lectures and laboratory exercises. For graduate students. Prerequisite: Microbiology 211. Laboratory fee, \$16. (1965-66 and alternate years.)
- 249-50 *Introduction to Medical Research** (2-3) The Staff
Primarily for graduate students. A comprehensive introduction to the major medical research techniques—statistical, physical, chemical, electrical, and radiobiological—as applied to biological materials in the medical sciences. Laboratory fee, \$7.50 a semester. (Academic year—W 1-5 pm.)
- 291-94 *Staff Seminar* (1-1) The Staff
For graduate students. Biweekly throughout the year. (Academic year—as arranged.)
- 297-98 *Research in Microbiology* (1-1) The Staff
(Academic year—as arranged.)
- 299-300 *Thesis* (1-1) The Staff

Pathology†

Professors T. M. Peery (*Chairman*), W. R. Hargrove (*Research*), F. N. Miller
Associate Professors William Newman, W. L. Marsh
Assistant Professors Lois Pratt (*Cytology*), Alexander Frieslow, F. S. Jansz
Special Lecturers E. B. Helweg, L. C. Johnson

Bachelor of Science in Medical Technology. Prerequisite: the Science curriculum, pages 14-15, including Biology 1-2, Chemistry 11-12, and Microbiology 211 and 212. Required: the general requirements, pages 20-22, 25, including Chemistry 21 and 22, and the following second group courses offered in the University Hospital: Pathology 115-16, 117-18, and 119-20.

Doctor of Philosophy—See the Graduate Council Catalogue.

- 115-16 *Introduction to Medical Science* (1-1) Marsh and Staff
For students in medical technology at the University Hospital. These lectures, based upon physiology, pathology, and medicine, provide a background for the interpretation of laboratory data. (Academic year—1 hour a week.)
- 117-18 *Principles in Medical Technology* (4-4) Marsh and Staff
For students in medical technology at the University Hospital. Topics: pathophysiology, and sources of error, of the methods used in clinical chemistry, clinical microbiology, serology, hematology, and clinical immunology. (Academic year—3 hours a week.)
- * An interdepartmental course. The student should register in the department offering his research.
- † The Staff of Laboratories 4 for the academic year 1964-65.

119-20 *Medical Technology Laboratory* (10-10)

Practice and experience by rotation through the various divisions of the Pathology laboratories of the University Hospital, as follows: hematology and urinalysis, 12 weeks; chemistry, 12 weeks; bacteriology and parasitology, 10 weeks; blood bank, 8 weeks; serology, 4 weeks; tissue pathology, 4 weeks. — 30 hours a week for 50 weeks.

Marsh and Staff

231 *Problems in Experimental Cellular Pathology* (1-)

For nonmedical graduate students. Also for a limited number of specially qualified medical students on an elective basis. Cytological and biophysical aspects of cellular function in relation to normal and selected pathological conditions. (Fall—4 hours a week as arranged).

Dutcher

Pharmacology*

Professor H. G. Mandel† (Chairman)

Clinical Professor R. G. Smith

Professorial Lecturer B. B. Brodie

Associate Professor Clarke Davison

Assistant Professors V. H. Cohn, Jr., T. M. Farber, Paul Mazel, Melvin Reich (Research), Elizabeth Tidball (Research), W. P. Weiss (Research), W. R. Jondorf (Research)

Special Lecturer F. E. Hahn

Master of Arts or Master of Science in the field of Pharmacology.—Prerequisite: a Bachelor of Arts or Bachelor of Science degree, respectively. The undergraduate program must include the following courses or the equivalent: Biology 1-2; Physics 1-2; Chemistry 11-12, 27, 151-52. One year of calculus and a course in physical chemistry should be included, but these courses may be taken during the work towards the Master's degree.

Required: the general requirements, pages 2-30, including Biochemistry 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300. The remaining courses may be selected from Biochemistry 224, 241; Chemistry 116, Physiology 259, Microbiology 211, 225, 227, 234, Pharmacology 249-50, 271, 279-80, 281, 283.

Doctor of Philosophy.—See the Graduate Council Catalogue.

249-50 *Introduction to Medical Research* (3-3)

Primarily for graduate students. A comprehensive introduction to the major medical research methods—physiological, statistical, physical, chemical, electrical, and radiological—as applied to biological materials in the medical sciences. Laboratory fee, \$7.50 a semester. (Academic year—W 1-5 pm.)

Reich and Staff

261 *Pharmacology* (7-)

Lectures, laboratories, and rotations concerning the interaction of drugs and biological systems as a basis for the rational therapy of disease. Open to qualified nonmedical students. (Fall—9 hours a week.)

Mandel and Staff

261-63 *Pharmacological Research* (3-3)

Primarily for those properly qualified graduate and medical students working careers in pharmacology. (Academic year—as arranged.)

The Staff

* The Staff of Instruction in the Pharmacology Department.
† On sabbatical leave from 1962-63.
‡ An interdepartmental course. The student should register in the department directing his research.

269-70 *Pharmacology Seminar* (1-1)

Recent advances in pharmacology. For those interested in pharmacological research. Open to qualified nonmedical students. (Academic year—2 hours a week.) The Staff

272 *Physiological Disposition of Drugs* (3)

A lecture and seminar course dealing with the fate of drugs in biological tissue. Discussion of absorption, distribution, chemical alterations, and excretion of drugs, and the physical, chemical, and biological factors affecting these processes. Prerequisite: Pharmacology 261. (1965-66 and alternate years; spring—as arranged.) Cohn, Davison

279-80 *Special Topics in Pharmacology* (arr.)

A lecture course dealing with select aspects of drug action. Prerequisite: Pharmacology 261. (Academic year—as arranged.) Farber, Mazel, and Staff

281 *Physiological Techniques in Pharmacology* (3)

A series of specially selected experiments with supplementary lectures designed to illustrate physiological techniques useful in obtaining information as to mechanism and site of action of pharmacological agents. Prerequisite or concurrent registration: Pharmacology 261. (1965-66 and alternate years; fall—as arranged.) Farber, Mazel

282 *Biochemical Techniques in Pharmacology* (3)

A lecture and laboratory course designed to equip the student with the theory and practice of modern biochemical techniques applicable to the study of the metabolic fate and mechanism of action of drugs. Prerequisite or concurrent registration: Pharmacology 261. (1964-65 and alternate years; fall—as arranged.) Cohn, Reich

297-300 *Thesis* (3-3)

Required of Master of Arts and Master of Science candidates. (Academic year—as arranged.) The Staff

Philosophy*

Professor C. E. Gauss (4 hours/week)
Associate Professor R. H. Schlegel
Assistant Professor C. H. Pfundner

Bachelor of Arts with a major in Philosophy (Field of Study).—Prerequisite: the Arts and Sciences curriculum, page 14.

Required, in addition to the general requirements, pages 20-22, 23-24, the passing of the Philosophy major examination at the end of the senior year. The coordinated knowledge upon which the student will be examined is schematized under the following two main headings: (1) methodology and theory of knowledge and (2) the history of ideas of some philosophy. The Department of Philosophy provides a preceptor (Philosophy 26-27) intended to assist the student in preparing for the major examination.

Major in Arts in the field of Philosophy.—Prerequisite: an undergraduate number in Philosophy at the University or the equivalent, as attested by the passing of this University's major examination in Philosophy; the following specific courses or the equivalent: Philosophy 111-12, 143, 121-22, and 141.

Students must complete the general requirements, pages 21-23, 26-28. As much as possible of the required work must be by independent study. When assigned-group courses are used, students will be required to do more intensive and extensive work than undergraduate students. A general written examination in two areas of Philosophy and an oral examination in one of them are required.

The staff of instruction is for the academic year 1963-64.

in the student's special field will be required in addition to a Master's thesis of substantial length.

Master of Arts in the field of Linguistics.—See pages 117-114, and the departments of Germanic Languages and Literatures and Romance Languages and Literatures.

FIRST GROUP

51-52 *Introduction to Philosophy* (3-3)

A critical introduction to the problems of modern philosophy in relation to scientific and social developments since the Renaissance. This course is not merely intended as an introduction to those courses in philosophy which follow but is a unit complete in itself for those students in other departments interested in the problems of philosophy relevant to modern thought. (Academic year—day and evening; summer 1964.)

The Staff

SECOND GROUP

111-112 *History of Philosophy* (3-3)

The history of western philosophy from early Greece to Kant, seen as the development and modification of the Hellenic cultural pattern. (Academic year—evening.)

Pfuntner

113 *History of 19th and 20th Century Philosophy* (3)

European philosophy from the time of Kant. "isms" and ideologies at the root of contemporary thought. (Fall—day; summer 1964.)

Pfuntner

121-122 *Logic and Scientific Method* (3-3)

First half: the elementary principles of valid reasoning with emphasis on developing skill in using these principles; introductory consideration of symbolic logic, the nature of a formal system. *Second half:* general analyses of the methods of investigation and reasoning used in the natural and social sciences; procedures and requirements of definition, classification and sorting, analogical and inductive inference, causal determination, the nature and function of hypothesis, measurement, principles of the theory of probability. (Academic year—day.)

Pfuntner

131 *Ethics* (3)

A critical examination of traditional ethical theories from Plato to Ayer. Consideration of the theoretical problems of ethics: the meaning of "good", the nature of ethical judgment, the justification of ethical standards. The course aims at enabling the student to develop his own ethical view as a consequence of his greater understanding of moral phenomena. (Fall—evening; summer 1964.)

Schlager

151 *The Philosophy of Science* (3)

Brief history of modern science; problems of the meaning of causality, the justification of induction, theories of probability; the nature of scientific explanation and the status of inferred entities, the nature of a mathematical system. Consideration of the philosophical import of certain scientific theories such as Einstein's theory of relativity, Heisenberg's principle of indeterminacy, and Bohr's principle of complementarity. (Fall—day.)

Schlager

162 *Epistemology* (3)

The meaning and criteria of truth; the meaning and cognitive significance of common sense, scientific, and religious propositions or beliefs. Study of problems related to perception, verification, universals, *a priori* and *a posteriori* knowledge, the concept of modality. (Spring—day.)

Schlager

162 *Aesthetics* (3)

The nature of aesthetic experience, problems of appreciation and judgment in the arts, and of the theory and process of artistic creation. Emphasis on contemporary arts and criticism. (Spring—day.)

Gauss

172 *American Philosophy* (3)

The philosophies of Peirce, Russell, James, Dewey, and Santayana as representatives of American thought. (Spring—day; summer 1964.)

Pfuntner

- 190 *Philosophy of History* (3)
Problems of historical knowledge and explanation. Critique of philosophies of history. (Fall—day.) Gauss
- 193 *Topics in Contemporary Philosophy* (3)
Intensive study of one selected topic: topic for 1963-64: philosophy in contemporary literature. (Summer 1964.) Gauss
- 196 *Philosophy of Language* (3)
Investigation of the logical syntax of language, different symbolic forms, and problems of meaning; linguistic reference. (Spring—day.) Schlager
- 199-200 *Proseminar: Readings for the Major* (1-3)
Conferences and group discussions in preparation for field-of-study major examination. (Academic year—as arranged.) The Staff

THIRD GROUP

- 201-2 *Readings and Research* (3-3)
Advanced readings and reports. Investigation of special problems. (Academic year—as arranged.) The Staff
- 211 *Seminar: Plato* (3)
Intensive study of Plato's later dialogues. (Fall—evening.) Gauss
- 216 *Seminar: Kant* (3)
A study of one of Kant's Critiques. (Not offered 1964-65.) Schlager
- 222 *Seminar: Epistemology* (3)
Intensive study of selected topics in theory of knowledge. (Spring—evening.) Schlager
- 222 *Seminar: Aesthetics* (3)
Intensive study in selected problems. (Not offered 1964-65.) Gauss
- 272 *Seminar: American Philosophy* (3)
Topic for spring 1965—development of American Pragmatism. (Spring—evening.) Pfuntner
- 299-300 *Thesis* (1-3)
The Staff

RELATED COURSES IN OTHER DEPARTMENTS

- Classical Languages and Literatures 71-72, *Greek and Roman Backgrounds in Literature* (3-3)
- Mathematics 101, *Introduction to Mathematical Logic* (3)
- Psychology 196, *History and Systems of Psychology* (3)

Physics*

Professors G. M. Koehl, Herbert Jehle

Associate Professors H. H. Hobbs (*Chairman*), A. J. Zickell, Otto Bergmann

Associate Professorial Lecturers H. H. Landon, Jr., Herbert Rabin

Assistant Professors S. S. Yeandle, Jr., Margaret Montoya, J. M. Harrison, Sven Bookland

Lecturers J. N. Teves, K. I. Ogilvie, W. J. Condeell, Jr.

Bachelor of Arts or Bachelor of Science in Physics (Departmental).—Prerequisite: the Arts and Letters or the Science curriculum, respectively, pages 14-15, including Physics 1-2, 31-32, 31-52 (or former 11, 12, 13, 19; or 11, 14, 15, 16); Chemistry 21; Mathematics 21, 22, 23, and 24 (or former 29, 30, and 31).

Required for the Bachelor of Arts degree and the Bachelor of Science degree: the general requirements, pages 20-22, 23, 24-25, including Physics 161, 162, 163, 164, 165, 167-68, plus six courses in Mathematics selected from the following: Mathematics 124, 134, 139, 140, 142, or 167.

Master of Arts or Master of Science in the field of Physics.—Prerequisite: the degree of Bachelor of Arts or Bachelor of Science, respectively, with a major in Physics at this University, or the equivalent.

Required: the general requirements, pages 27-30, including Physics 231, 232, 233-34, 235, 236, 291-93, plus one of the following: 241, 242, 243, 244, 245, or 251-52.

FIRST GROUP

1-2 General Physics (4-4)

Lecture (2 hours), recitation (1 hour), laboratory (2½ hours). Principal phenomena of classical and modern physics. *First half:* a study in depth of selected topics in classical physics which form a foundation for and lead to an understanding of modern physics. *Second half:* the fundamental concepts of atomic, nuclear, solid state, and related fields of modern physics. Prerequisite: two years of college preparatory mathematics or equivalent registration in Mathematics 6. Material fee, \$11 a semester. (*First half:* full-day and evening; *spring* day. *Second half:* spring day and evening.)

The Staff

11 Introductory Physics (3)

An introduction to the phenomena of light, heat, force, energy, vectors; the properties of matter. This course may be taken as a terminal course by nonscience students who wish an introduction to the physical sciences. Prerequisite: high school algebra and plane geometry. Material fee, \$11. (Offered last time, summer 1964.)

Koehl and Staff

12 Introductory Physics (3)

Mechanics, wave motion, and sound. Prerequisite: Physics 11. Material fee, \$11. (Offered last time, summer 1964.)

Harrison and Staff

13 Introductory Physics (3)

Lecture (1 hour), recitation (1 hour), laboratory (2½ hours). Elementary electricity and magnetism. Prerequisite: Physics 11. Material fee, \$11. (Offered last time, fall 1964—day and evening.)

Harrison and Staff

Elementary electricity (Summer 1964, 0)

15 General Physics (3)

Lecture (1 hour), recitation (1 hour), laboratory and conference (2½ hours). Elementary electricity and magnetism. Prerequisite: Physics 11, Mathematics 21 or former 31. Material fee, \$11. (Offered last time, fall 1964—day and evening.)

Hobbs and Staff

Electricity (Fall 1964, 0)

* The Staff of Instruction is for the academic year 1963-64 (124)

- 16 **General Physics (3)** Hobbs
Lecture (2 hours), conference (1 hour). Modern physics, molecular structure of matter, structure of the atom. Prerequisite: Physics 13 or 15, Mathematics 22 (or former 50), and consent of the instructor. (Offered last time: spring 1965—day and evening.)
- 51 32 **Introduction to Theoretical Physics (2-2)** The Staff
Mechanics, fluid flow, electromagnetic fields, and vibrations, with an introduction to the appropriate theoretical techniques. Prerequisite: one year of calculus and Physics 1-2. (First offered 1963-64.)
- 51 52 **Introduction to Experimental Physics (2-2)** The Staff
Experiments and lectures on the basic phenomena of physics and technique of experimentation and interpretation of data. The following areas are covered: statistical treatment of data, electricity and magnetism, electronics, optics, heat, and modern physics. This course is designed to show the phenomena that are the basis of the theoretical aspect of physics and to introduce the student to experimental techniques necessary for further work in natural sciences. Prerequisite: Physics 1-2. Material fee, \$11 a semester. (First offered 1965-66.)

SECOND GROUP*

- 105 **Principles of Electricity (3)** The Staff
Elementary d-c and a-c circuit theory, electric and magnetic fields, dielectric and magnetic materials, motion of charged particles in electric and magnetic fields. Prerequisite: Physics 16, Mathematics 24 (or former 31). (Offered last time: fall 1964—day.)
- 113 **Atomic Physics (3)** Bergmann
Properties of elementary particles, interactions with radiation, atomic structure, optical and X-ray spectra, introduction to wave mechanics. Prerequisite: Physics 16, Mathematics 24 (or former 31). (Offered last time: fall 1964—evening.)
- 114 **Statistical Physics (3)** Jehle
Classical and quantum statistics with emphasis on Maxwell-Boltzmann statistics, application to kinetic theory of gases, atomic diffusion, specific heats of gases and solids. Prerequisite: Physics 16, Mathematics 24 (or former 31), and permission of the instructor. (Offered last time: spring 1965—evening.)
- 116 **Quantum and Solid State Physics (3)** Hobbs
Primarily for engineers. Prerequisite: Physics 16, Mathematics 111. (Offered last time: spring 1965—evening.)
- 118 **Introduction to Solid State Physics (3)** Rubin
Dielectric and magnetic properties of solids, electron theory of metals, semiconductors, superconductors, and plastic flow. Prerequisite: Physics 113. (Summer 1964.)
- 51 52 **Intermediate Laboratory (2-2)** The Staff
Independent work of an advanced nature designed to introduce the student to laboratory and shop techniques and the use of specialized instruments. Prerequisite: Physics 51-52. Material fee, \$11 a semester. (First offered 1964-65.)
- 53 **Advanced Laboratory in Atomic Physics (3)** Hobbs
Prerequisite: Physics 16. Material fee, \$11. (Spring, Saturday—as arranged.)
- 101 **Mechanics I (3)** The Staff
Mechanics of mass points and rigid bodies. Newton's Laws, conservation laws, Euler's equations, inertial frames, small vibrations, and elements of Lagrange's and Hamilton's equations. (Fall—day and evening.)

* Physics 1-2, 31-32 (or the equivalent) and the content of a departmental course are prerequisite for all second-group courses.

162 *Mechanics II* (3)

Basic aspects of elasticity and fluid dynamics, strain tensor, stress tensor, equations of equilibrium, elastic waves, ideal and viscous fluids. (Spring—day and evening.)

The Staff

163 *Optics* (3)

Oscillations and waves, energy and momentum of the electromagnetic field, interference, diffraction, geometrical optics, optics of crystals and other media, dispersion. (1964-65 and alternate years: fall—day; 1965-66 and alternate years: fall—evening.)

The Staff

164 *Thermodynamics* (3)

Basic principles of thermodynamics, reversible changes, applications to simple systems, thermodynamic potentials, phase equilibrium. (1964-65 and alternate years: spring—day; 1965-66 and alternate years: spring—evening.)

The Staff

165-66 *Electromagnetic Theory* (3-3)

Development of Maxwell's field equations using vector and tensor calculus, electrostatics, special functions, stationary and nonstationary phenomena, basic circuit theory, magnetic waves and radiation, relativistic effects, microscopic basis of the macroscopic theory. (First offered 1965-66.)

The Staff

167-68 *Modern Physics* (3-3)

The experimental basis of modern physics and an introduction to quantum mechanics and statistical mechanics with applications to atomic and nuclear physics. (First offered 1965-66.)

The Staff

171 *Elementary Solid State Physics* (3)

Dielectric and magnetic properties of solids, behavior of electrons in metals and semiconductors, lattice defects. (Spring—evening.)

The Staff

172 *Biophysics* (3)

Molecular basis of biophysics, biosynthesis and reproduction. (Fall—evening.)

Yeandle

173 *Nuclear Reactors* (3)

Neutron physics, sources of neutrons, neutron reactions, slowing down and diffusion, introduction to transport theory, fission processes, reactor types, basic theory of homogeneous and heterogeneous reactors, including specific numerical studies. (Fall—evening.)

London

THIRD GROUP*

231 *Electromagnetic Theory: Macroscopic Effects* (3)

An advanced presentation of those aspects of electromagnetism having to do with fields in the vacuum and in media, their determination in terms of physical boundary conditions and their effects upon charges and matter; definition of the field quantities, the experimental field relations, solutions for the fields, the effects of dielectrics and magnetic media, time-dependent solutions, and basic aspects of optics. (Fall—evening.)

The Staff

232 *Advanced Mechanics* (3)

The analytic methods of mechanics, which form a basis for modern theory: variational principles, Lagrange's equations, the Hamiltonian formulation, canonical transformations, classical perturbation theory, the transition to the continuum. (Spring—evening.)

The Staff

233-34 *Quantum Mechanics* (3-3)

The general aspects of quantum mechanics with emphasis upon the developmental principles involved rather than specific applications. Operators and linear algebras, eigenvalues and transformation theory, Schrödinger and Heisenberg pictures and their equivalence, representation of the energy, momentum, angular momentum, Pauli theory of the spin, the semiclassical limit, perturbation theory, scattering theory, and the time development operator. (A one-semester course.)

The Staff

* Consent of a departmental graduate adviser is required for admission to all third-group courses.

235 *Special Relativity* (3)

The application of relativistic mechanics to the basic fields of physics, space and time, mechanics of point particles, tensors and covariant mechanics of point particles, covariant form of electromagnetism and its connection to Maxwell's equations, relativistic variational principles and conservation laws, relativistic Schrödinger equation, the Dirac equation, and the hydrogen atom. (Fall—evening.)

The Staff

236 *Electromagnetic Theory: Electrodynamics and Radiation Effects* (3)

Advanced potentials, Liénard-Wiechert potentials, radiation from moving charges, multipole fields, covariant methods, the self-field problem, and Dirac's classical radiation theory. (Spring—evening.)

The Staff

241 *Statistical Mechanics* (3)

An advanced analysis of atomic configurations under thermodynamic conditions using partition functions and cluster expansion techniques. Ideal gases and nonideal gases, electron plasmas, and the liquid state are considered. (Fall—evening.)

Jehle

242 *Atomic and Molecular Structure* (3)

The structure of atoms and collections of atoms, the energy levels, binding energy, dipole moments, and optical activity. Hartree and Hartree-Fock equations, spin-effects, molecular orbitals, rotational and vibrational effects, paramagnetic resonance, chemical bonding. (Spring—evening.)

Jehle

243 *Solid State Physics: Structure and Bonding* (3)

The atomic structure of solids and analysis of the bonding of crystals. Crystalline forms and symmetries, atomic vibrations and specific heats, sound and optical propagation, the Mossbauer effect, crystalline defects, bonding in the passage from ionic crystals to metals, the Wigner-Seitz calculation. (First offered 1963-66.)

Hobbs

244 *Solid State Physics: Electronic Processes in Metals* (3)

The phenomena in metals and semiconductors determined by the electronic states at low, binding, specific heats, magnetic properties, transport phenomena. The effects are handled primarily from the independent particle approximation and many-body aspects are discussed. (Spring—evening.)

Zuchelli

245 *Quantum Electrodynamics: Theory and Applications* (3)

A noncovariant presentation of the lower order effects depending upon the quantal nature of the electromagnetic field. Hamiltonian formulation and field quantization, perturbation calculations, Compton effect, photoelectric effect, electron-electron scattering, pair creation and annihilation, notions of renormalization, divergence identities. The physical content of the theory and the problems of computation are presented as a preparation for the more formal nature of the advanced approaches. (Fall—evening.)

Zuchelli

246 *Quantum Field Theory* (3)

A covariant presentation of the general theory of quantized fields, Boson and Fermion field theory of the S-matrix, dispersion relations, and the renormalization program. (Spring—evening.)

Bergmann

247 *Quantum Theory of Many-Body Systems* (3)

Modern approaches to systems of many interacting particles: Bogoliubov theory, superconductivity, development of the effective potential, problems connected with the Fermi surface, perturbative verification of collective modes. (First offered 1965-66.)

Bergmann

248 *Elementary Particles* (3)

Strong, weak, and spinor fields and their particle aspects, weak and strong interactions, symmetry properties, and conservation laws. (Spring—evening.)

Bjorklund

249 *Irreversible Processes* (3)

Foundation of thermodynamic concepts to irreversible processes. Discussion of thermodynamic forces and fluxes, and the Onsager reciprocal relations. Review of the statistical mechanical reasons for assuming the postulate of irreversibility thermodynamically. (Fall—evening.)

Yessidie

250 *Selected Topics in Modern Physics* (3)

Complements the established curriculum by affording formal instruction in topics of immediate interest to the development of physics and in particular to the members of the graduate research group. (This course may be taken several times for credit with the permission of the graduate adviser.) (Spring—alternating.)

The Staff

251-52 *Laboratory* (2-2)

Individual work on special topics. Material fee, \$11 a semester. Saturdays—as arranged.

The Staff
(Academic year)291-92 *Seminar* (3-1)

Individual investigations of special problems. All students registered for a Master's degree in physics are expected to attend this seminar during residence for the first year and to take part in its programs. Credit for participation in the seminar work is granted during the last two semesters of residence. (This credit, however, is based upon the seminar work during the entire period of residence.) (Academic year—even years.)

The Staff

The Staff

299-300 *Thesis* (3-3)

The Staff

Physiology*

Professor C. E. Leese

Associate Professor C. S. Tullball (*Animal Chemistry*), Hortense Loucks (*Research*)

Assistant Professors: Barbara Alving, Marie Canady (*Physiology*), Quentin Hartwig

Lecturers: J. F. Hoffman, D. P. Rall, R. J. Podolsky

Special Lecturers: S. J. Sarnoff, J. H. U. Brown

Master of Arts or Master of Science in the field of Physiology—Undergraduate work should include chemistry and physics. It should be supplemented by further courses in mathematics and science such as calculus, physical and organic chemistry.

Required: the general requirements, pages 7-9. In addition to the thesis, the minimum of required work should include Physiology 201 or 212, 262, and at least three semester hours of research (Physiology 295 or 296).

Doctor of Philosophy—See the Graduate Catalogue.

115 *Introduction to Human Physiology* (3)

Lectures on the fundamentals of physiology in its various subdivisions. Prerequisite: one year of general science or one semester of biological science. (1964 to 1965 academic years: fall—TTh 8:40-10 am; 1965-66 and alternate years: fall—5:10-6:20 pm.)

Leese

130 *Psycho-Physiology* (2)

Lectures on the genesis and expression of personality, with emphasis on the physiological approach. Prerequisite: Physiology 115 or the equivalent and general psychology. (Spring—TTh 5:10 pm.)

Leese

150 *Medical Physiology*

Lectures and laboratory work in all divisions of physiology. This course is designed for medical students. (Spring—lectures, 7 hours a week, laboratory 9 hours a week.)

The Staff

* The Staff of Lecturers is for the academic year 1965-66.

- 21 12 *Problems in Physiology* (arr.) The Staff
 Directed study under the supervision of a staff member. Prerequisite: Physiology 137,
 150 or 232, and the consent of the instructor. (Academic year—as arranged.)
- 22 22 *Physiology Seminars* (1-1) Louckes
 Prerequisite: Physiology 150 or 232 and a reading knowledge of French or German.
 Academic year—as arranged.)
- 23 23 *Advanced Mammalian Physiology* (10) The Staff
 Lecture 7 hours a week; laboratory 9 hours a week. Prerequisite: Chemistry 11-12;
 Mathematics 2; Physics 1-2 or Physics 11, 47; or the equivalent. It is recommended
 that Biochemistry 21-23 be taken as a prerequisite or concurrently. (Spring—MT
 VI 4-5 pm.)
- 24 24 *Comparative Physiology* (2) The Staff
 Lectures and seminars on topics of current interest in comparative physiology, with em-
 phasis on non-mammalian forms. Prerequisite: Physiology 150 or 232 or Zoology 162;
 and the consent of the instructor. (1964-65 and every third year) fall—as ar-
 ranged.)
- 25 25 *Physiology of Cell Membranes* (2) The Staff
 Lectures and seminars on lipid and molecular transport through biological membranes.
 Prerequisite: Chemistry 111-12 or Physics 173 and Physiology 150 or 232 or Botany
 21-24 and the consent of the instructor. (1965-66 and every third year) fall—as
 arranged.)
- 26 26 *Biophysics* (2) The Staff
 Lectures and seminars on biological topics which require development along physical
 lines. Prerequisite: Chemistry 101-12 or Physics 173 and the consent of the instruc-
 tor. (1966-67 and every third year) fall—as arranged.)
- 27 27 *Research* (arr.) The Staff
 Prerequisite: Physiology 150 or 232, or the equivalent. (Academic year—as ar-
 ranged.)
- 28 28 *Thesis* (3-3) The Staff

Political Science*

Chairman: W. R. West (Emeritus); J. W. Brown; W. H. Kruse, K. L. Lonsdale, R. E.
 (Emeritus)
 Assistant Lecturers: F. M. Ralicki, F. I. Richard
 Associate Professors: H. L. Lofgren (Chairman), Benjamin S. Scott, H. R. Lindberg
 Associate Professors: Lecturers: H. M. Egan, Jr., L. P. McKnight
 Professor: C. H. Stevenson, Jr.
 School of Arts and Sciences in Political Science (Departmental)—Prerequisite: the
 School of Arts and Sciences, year 14, including Political Science 1-10.
 The following groups are distributed as follows: Group A) six hours
 of Group B) six hours from Group C) and six additional hours from any group or
 groups.
 *The school of Arts and Sciences in Political Science (Departmental)—Prerequisite: the
 School of Arts and Sciences, year 14, including Political Science 1-10.

groups. The student will normally complete all six hours of any full-year course which he selects.

Group A: Political Science 111, 112, 117-18, 121-22. Group B: Political Science 171, 172, 181-82. Group C: Political Science 104, 125, 145, 146, 151-52. Group D: 105, 107, 113, 119, 120, 141, 157-58, 177-78, 187-88, 191-92, 194.

American Thought and Civilization 101 *American Civilization* is recommended as a senior year elective for Political Science majors.

Bachelor of Arts with a major in Latin American Civilization (Field-of-Study).—See the Department of History.

Master of Arts in the field of Political Science.—Prerequisite: a Bachelor of Arts degree with a major in Political Science at this University (or the equivalent major elsewhere) with a B average (or better) in the major.

Requisite: the general requirements, pages 27-30. The thirty hours of required work must be approved in advance by the Adviser.

Master of Arts in the field of Latin American Civilization.—See the Department of History.

Doctor of Philosophy.—See the Graduate Council Catalogue.

Bachelor of Arts in Government or Master of Arts in Government in the fields of International Affairs or Public Affairs.—See the School of Government, Business, and International Affairs Catalogue.

FIRST GROUP

1 *Introduction to Government** (3)

Basic principles and problems of political life: theories, forms, and processes of government in the United States and foreign countries. Attention is also given to international relations. (Fall—evening; spring—day; summer 1964.)

2-10 *Government of the United States** (3-3)

First half: structure, powers, and operation of the Federal Government: Congress, the President, and the Supreme Court; elections, political parties, and pressure groups. *Second half:* state and local governments; civil rights; major functions of government at federal, state, and local levels. (First half: fall—day and evening; spring—day; summer 1964. Second half: fall—day; spring—day and evening; summer 1964.)

SECOND GROUP*

104 *State and Local Governments* (3)

State, municipal, and other local governmental forms, operations, and problems, with attention to policy formulation and administration, and to the forces of practical politics. (Spring—day.)

107 *Problems in Modern Political Thought* (3)

Development of democratic political institutions and analysis of the main challenges to constitutional democracy in the 19th and 20th centuries. (Not offered 1964-65.)

111 *Introduction to Comparative Government and Politics* (3)

Government and politics of the principal constitutional democracies of Western Europe, Great Britain and France. (Fall—day.)

112 *Introduction to Comparative Government and Politics* (3)

Government and politics of the principal political systems of Central and Eastern Europe, Germany and the Soviet Union. (Spring—day.)

113 *Political Problems of the British Commonwealth of Nations* (3)

From Colonial Empire to modern Commonwealth: questions of equal partnership, government and politics in the principal Commonwealth states; problems of new states in Asia and Africa. (Not offered 1964-65.)

* The School of Government, Business, and International Affairs offers the first and second years courses.

- 117-18 *Political Theory: the Nature and Growth of Political Thought* Kraus
in the West (2-3)
First half: from Classical Antiquity to the Middle Ages; the forging of the western political tradition. Second half: from the Renaissance and Reformation to recent times. Theoretical foundations of the modern state: concepts and politics: sovereignty, absolutism, and resistance; liberalism, democracy, and conservatism. (Academic year-evening.)
- 119-20 *Foundations of American Democracy* (1-2) Morgan*
Introduction to political thought in the United States from colonial times to the present. (Academic year-evening; summer 1964. Political Science 119-131.)
- 121-22 *The Constitution of the United States* (3-2) West
Judicial power of federal courts in constitutional interpretation. First half: emphasis on separation of powers, federal-state relationships, and taxation. Second half: emphasis on constitutional protection of civil rights. (Academic year-evening.)
- 125 *Legislative Organizations* (1) Riddick
A study of Congress: constitutional aspects, legal analysis of make-up, and political organization. Political and parliamentary procedures used in the preparation and enactment of legislation. (1965-66 and alternate years.)
- 141 *The Development of Legal Institutions* (3-2) Brewer
Introduction to historical jurisprudence: primary attention to the origins of the Roman Law of Continental Europe and of the Anglo-Saxon Common Law. (Fall-day.)
- 145 *Political Parties and Politics* (2) LeBlanc
Organization and operations of political parties in the United States: major and minor parties, bosses and corruption, nominations and elections. Influence on President and Congress. (Fall-evening; summer 1964.)
- 146 *Political Pressures and Public Responses* (3) Ludden
Public opinion, special interest groups, and pressure groups as they operate on government to influence public policy. (Spring-evening.)
- 151-52 *Public Administration* (2-3) LeBlanc
Introductory survey of the theory and practice of governmental administration and its relation to politics, legislation, the courts, and non-governmental organizations and interests. (Academic year-day.)
- 155-56 *Current Problems in Domestic Politics* (1-1) Slavman
Analysis of outstanding contemporary issues in internal American politics with discussion of problems and policies. (Academic year-evening.)
- 171 *International Politics* (2) Purcell, Nimer
Basic forces underlying the conduct of international relations and the formation of foreign policy; power politics, imperialism, collective security, and international cooperation. (Fall-day and evening; summer 1964.)
- 172 *International Organization: the United Nations* (3) Purcell
Development and current operation of international organization within the system of sovereign states with emphasis on the United Nations. (Spring-day and evening; summer 1964.)
- 177 *Recent Trends in Latin American Politics and Government* (3) Davis
Types of government, recent developments, and current political conditions in each of the twenty Latin American republics. (Fall-day; summer 1964.)
- 178 *International Politics in the Western Hemisphere* (3) Davis
Political relations of the American Republics in the 19th and 20th centuries, the development of Pan Americanism and the Organization of American States. (Spring-day.)

* Appointment effective September 1963.

181-82 *International Law* (3-3)

Survey of the public law of nations with emphasis on the law of peace. Neutrality and the so-called law of war receive attention in the second semester. (Academic year—day and evening.) Brower

187-88 *Current Problems in International Politics* (1-1)

Analysis of outstanding contemporary international issues with discussion of problems and policies. (Academic year—evening.) Slavov

191 *Politics of the Middle East* (3)

Domestic and international politics of Turkey, Iran, Israel, and the Eastern Arab states and Principalities. Special attention to the specifically regional aspect of the foreign policies of these countries. (Fall—day.) Nimer

192 *Politics of North and Central Africa* (3)

Domestic and international politics of the Western Arab States, Ethiopia, Somalia, Liberia, and the newly independent states of former British, French, and Belgian Africa. Special attention to the specifically regional aspect of the foreign policies of these countries. (Spring—day.) Nimer

194 *Far Eastern Politics: Contemporary International Relations in the Pacific Area* (3)

Background and development of the major states of East Asia with attention to the constitutional systems and the foreign policies of the region. (Spring—evening.) Nimer

197 *Proseminar in International Affairs: Strategies of Contemporary American Foreign Policy* (3)

Analysis of diplomatic, economic, psychological, and military problems of United States foreign policy. Readings, term papers, and discussion. Primarily for seniors in the International Affairs curriculum; open to a limited number of other qualified students. (Fall—evening, spring—day.) Nimer

THIRD GROUP

209-10 *Seminar: the Federal Government of the United States* (3-3)

Advanced research including the legislative problems of Congress; relations of Congress with the Administration; constitutional and political powers of the President, the Cabinet, and the Executive Office of the President; the political politics of the presidency; and presidential policy leadership and control. (Academic year—evening.) West

212 *Seminar: Comparative Government and Politics* (3)

Selected topics and problems on comparative political and administrative institutions and the politics of modern constitutional governments and dictatorships. Each semester is devoted to a selected country or institutional or policy problem. Attention will be directed to questions of method. (Spring—evening.) Kraus

215 *Readings in Comparative Government and Politics* (3)

Readings and group discussions on methodological questions, comparative political and administrative institutions with attention to lectures, the changing role of the executive, political parties, constitutional and totalitarian approaches to public management and public services, the role of the military, etc. (Fall—evening.) Kraus

217 *Seminar: Topics in Political Theory* (3)

Research and discussion on problems of modern political and constitutional theory, the general aspects of representative government, democracy, socialism, and totalitarianism. Each semester is devoted to a separately assigned topic, such as socialism and communism, theories of resistance and revolution, problems of democratic theory. (Fall—evening.) Kraus

220 *Reading Course in Political Theory* (3)

Readings and group discussions, principally on modern political and constitutional theory from the 17th and 18th centuries. (Spring—evening.) Kraus

- 221-22 **Seminar: United States Constitution and the Judicial Function** (3-3) Morgan*
A study of constitutional interpretation as an aspect of the political process. (Academic year—evening.)
- 245 **Metropolitan Problems** (3) Bain
Growth of American cities and changing land use patterns in relation to internal transportation systems. The respective roles of the private automobile and of public transportation. The problems of financing and administering public transportation systems under public and private ownership. (Fall—evening.)
- 445-46 **The American Political Process: Political Parties and Interest Groups** (3-3) LeBlanc
First half: readings and group discussions on the nature and functions of political parties and the role and techniques of political interest groups. Second half: seminar on selected topics of American politics requiring the use of basic research materials. (Academic year—evening.)
- 271-72 **Problems in International Politics and Organization** (3-3) Purcell
A seminar to develop techniques of research in recent international affairs and to examine developments in international politics and organizations. (Academic year—morning.)
- 273 **Public Opinion and Foreign Policy** (3) Ludden
Development, organization, and operation of international information programs by major world powers. Public opinion in the United States influencing the formation and conduct of foreign policy. (Fall—evening.)
- 274 **Methods and Objectives of Foreign Policy** (3) Hadsel
Examination of the objectives of foreign policies of the major powers, with attention to political, economic, and military methods used to pursue those objectives. (Spring—morning.)
- 275 **International Relations: Concepts and Approaches** (3) Hadsel
An examination of the principal approaches to international relations and the theories underlying this field of study. (Fall—evening.)
- 277 **Seminar: Latin American Government** (3) Davis
Analysis of the political structures of selected Latin American republics. Two comparative governments studied each year. (Fall—evening.)
- 278 **Seminar: Latin American Political Philosophy** (3) Davis
Research in political personalities and philosophies of 19th and 20th century Latin America. (Spring—evening.)
- 279 **Reading Course in International Politics** (3) Nimer
Advanced readings in the substantive and methodological literature of international politics. (Fall—evening) since 1964.
- 281-82 **Seminar: International Law and Relations** (3-3) Brewer
Research in the public law of nations, with special attention to problems of pacific settlement, sanctions, war, neutrality, and state jurisdiction, and to their political implications. (Academic year—day.)
- 290 **Reading Course in African International Politics** (3) Nimer
Readings and discussions on selected topics in the international politics of Africa and Africa's relations with the United States and the international community. (Spring—evening.)
- 292 **International Politics and Government in the Middle East** (3) Nimer
Research and analysis of the international relations and major political problems of the Arab world and adjacent areas. (Spring—evening.)
*First semester effective September 1964.

293-94 *Seminar: International Politics and Government in the Pacific Area* (3-3)

Research and analysis of the major patterns of development in internal and international politics of the area, with advanced study of the governmental institutions of the Far East. (Academic year—evening.)

The Staff

299-300 *Thesis* (3-3)

(Academic year—as arranged; summer 1964)

INSTITUTE FOR SINO-SOVIET STUDIES

215-16 *Seminar: the Sino Soviet Bloc in World Affairs I-II* (3-3)

224 *Readings in Socialism and Communism* (3)

225 *Seminar: Theoretical Problems of Marxism-Leninism* (3)

227 *Seminar: the East European Satellites* (3)

230 *Seminar: Operational Techniques of International Communism* (3)

231 *Seminar: the Sino-Soviet Conflict* (3)

232 *Seminar: International Communication—the Sino-Soviet Orbit* (3)

233 *Seminar: Soviet Government and Politics* (3)

234 *Seminar: Soviet Internal Policy* (3)

238 *Soviet Law* (3)

253 *Seminar: Chinese Government and Politics* (3)

256 *Seminar: North Korea and North Vietnam in the Sino-Soviet Dispute* (3)

264 *Seminar: Sino-Soviet Relations with South Asia* (3)

269 *Seminar: Problems of Soviet Political Strategy—Case Studies* (3)

270 *Seminar: Soviet Foreign Policy* (3)

288 *Seminar: Soviet Military Policy and Strategy* (3)

293 *Seminar: China in the Communist Bloc* (3)

296 *Seminar: the Communist Bloc in Far Eastern International Politics* (3)

298 *Seminar: Sino-Soviet Relations with Southeast Asia* (3)

COURSES OFFERED IN SPECIAL PROGRAMS

In addition to the regular courses announced above, the University offers political science courses listed below for students in the following special programs: Air Force Advanced Management Program, the War College Programs.

200 *Fundamentals of National Power** (3)

261 *International and United States Foreign Policy** (3)

262 *National Security Policy of the United States** (3)

263 *Topics in International Law* (3)

265 *Diplomacy Since World War II* (3)

267 *American Military Policy* (3)

297 *Readings in International Affairs** (1 to 2)

* Offered in addition to the Master of Arts in International Studies programs at the Army War College, National War College, Air War College, and Navy War College.

Psychology*

Faculty: Thelma Hunt, J. L. Finer (*Chairman*), E. L. Phillips, J. N. Mosel, B. I. Levy
Associate Professors: Margaret Irwin, R. K. White
Associate Professors: C. F. Fairbairn, W. E. Caldwell, R. D. Walk, Eva Johnson, C. W. Kirklaide, L. E. Schlessinger (*Research*)
Associate Professorial Lecturer: R. K. Kahn
Associate Professors: R. E. Nolan, Lita Glanz (*Research*), Jacqueline Goodnow (*Research*), R. R. Bonato (*Research*)
Lecturer: Janet Johnson

Bachelor of Arts with a major in Psychology (Departmental).—Prerequisite: the Arts and Sciences curriculum, page 14, plus summer hours in first group courses in Psychology.

The general requirements for the degree are stated on pages 20-25. The sixty required semester hours must include twenty-four hours in Psychology in addition to those taken in the first group courses, including Psychology 101, 118, 131, 151, and 196, and Statistics 53 or 104. For the Bachelor of Arts or Master of Science in the field of Psychology—Prerequisite: the departmental general requirements, pages 27-30. Of the twenty-four required semester hours, a minimum of twelve must be in Psychology including Psychology 201 and 202; twelve may be in other fields approved by the Department.

Students' programs are available in the following fields of concentration: (1) tests and measurements, (2) counseling, (3) clinical, (4) social, (5) personnel, (6) experimental, (7) personality, and (8) experimental comparative. For detailed requirements consult the Chairman of the Department.

Master of Philosophy.—See the Graduate Council Catalogue.
Master of Arts in Government, Master of Business Administration, or Master of Public Administration in the field of Personnel Administration.—See the School of Government, Business, and International Affairs Catalogue.
Master of Arts in Education in the field of Employee Training and of Guidance.—Prerequisite: a Bachelor's degree from an accredited institution and two years of successful teaching experience. See the School of Education Catalogue.

FIRST GROUP

- General Psychology I (3)* The Staff
Psychological principles underlying human behavior.—Fall and spring—day and evening sessions (1964).
- Principles and Methods of Psychology I (3-3)* Walk and Staff
General Psychology I (2 hours). An experimental approach to the understanding of behavior. A variety of individual and group experiments are performed in the laboratory. A variety of all psychology majors who should take the course early in the major. May be taken without Psychology I. First half: awareness, discrimination, sensation, perception, and emotions and their relation to adaptive behavior. Second half: topics of interest, learning, memory, and problem solving.—(Autumn year—day and evening sessions.)

*Of 11 lectures by the author (see page 101).
 *Of 11 lectures by the author (see page 101).

The Staff

3 *Psychology of Adjustment* (3) (Formerly Psychology 4)

Processes involved in the total adjustment of the individual with emphasis on social environment; development in the individual of adjustment techniques. (Fall and spring—day and evening; summer 1964.)

J. Johnson

22 *Introduction to Educational Psychology* (3)

Consideration of individual and group differences, adjustments, and the psychology of learning in relation to education and training. (Fall—evening; spring—day; summer 1964.)

E. Johnson

29 *Psychology of Childhood* (3)

A genetic approach to the study of the child. Special emphasis is placed on the socialization process, learning, and the child's view of the world. (Fall—day; spring—evening; summer 1964.)

SECOND GROUP*

101 *Abnormal Psychology* (3)

The causes, diagnosis, treatment, and prevention of the various types of mental disorders. Prerequisite: 6 credits in psychology, or 3 credits in psychology and 6 credits in a biological science. (Fall—day and evening; spring—day; summer 1964.)

Nolan, Hunt, Levy

112 *Psychology of Adolescence* (3)

Psychological characteristics and problems peculiar to adolescence, with emphasis on applications of psychology to solution of such problems. (1964-65 and alternate years fall—day.)

E. Johnson

115 *Psychology of Language and Communication* (3)

An introduction to psycholinguistics and verbal behavior. Information theory, the measurement of meaning, cultural and linguistic structures in the perception and learning of language. (Fall—day.)

Mosé

118 *Physiological Psychology* (3)

Basic structure and functions of sensory systems, motor systems, central nervous system, autonomic nervous system, and endocrine system with special emphasis upon the relations between physiological functioning and behavior. (Fall—evening; spring—day.)

Finan, Hill

121 *Psychology of Learning* (3)

(Formerly Educational Psychology)
Current learning theories and issues. (Fall—day; summer 1964.)

Kirkbride

129 *Motivational Factors in Personality* (3)

(Formerly Introduction to Counseling)
A survey of basic principles and assessment techniques, with emphasis on applications to counseling. (Fall—evening; summer 1964.)

Hunt

131 *Psychological Tests* (3)

A survey of psychological tests and their more common uses in business, industry, government, law, medicine, and education. Material fee, \$7. (Fall—day; spring—evening; summer 1964.)

Mosé

144 *Personnel Psychology* (3)

Psychological concepts and techniques in personnel management and supervision. Applications to government, industry, and military organizations. (Fall and spring—evening.)

148 *Psychology of Advertising and Consumer Behavior* (3)

The motivational and social processes in economic behavior. Consideration of current

* Six credits in first group courses are prerequisite to all second group courses.

concepts and findings in motivational research. Evaluation of the effectiveness of mass media, public relations programs, and strategies of persuasion. (1965-66 and alternate years)

1 Social Psychology (3)

The social foundations of attitudes and behavior. Individual adjustment to group situations, such as the family, school, fraternity, and occupation. The psychological basis of race prejudice, nationalism, and war. (Fall—evening; spring—day; summer 1964)

Tuthill

2 Psychology of Propaganda and Public Opinion (3)

The psychology of opinion formation, the measurement of opinion, the social determinants of attitudes, the psychological processes in propaganda, the bases of receptivity of propaganda, psychological warfare. (1964-65 and alternate years; spring—evening)

Tuthill

3 Comparative Psychology (3)

A lecture course in general psychology. Covers psychological processes in intrahuman relations, evolution of behavior, the place of animal experimentation and research in psychology. (Spring—day)

Caldwell

4 Research Problems in Psychology (3-3)

Open to all for work on individual projects using human or lower animal subjects under an individual study plan. Open to qualified students by special permission of the instructor. (Academic year—as arranged)

The Staff

5 Readings in Psychology (3-3)

Selected readings on similar topics in psychology with conferences, for undergraduate students. Open only to students with 14 or more credits in psychology with a quality average of 3.00 or higher. Admission by special permission of the instructor. Academic year—as arranged; summer 1964)

The Staff

6 History and Systems of Psychology (3)

A major capstone course which includes a survey and integration of the major views, methods and concepts of psychology. Open to senior students only by special permission of the instructor, to other students with 14 or more credits in psychology. (Fall—evening; spring—day; summer 1964)

Caldwell and Staff

7 Current Research Issues in Psychology (3)

Open to all graduate students. Will be conducted as a seminar and will include recent experiments in Psychology. Open to those permitted by instructor. Emphasis is on student participation. Open only to senior psychology majors. (Spring—day)

Walk

THIRD GROUP*

1 Advanced General Psychology (3)

Advanced review of history, theory, and facts in the area of general psychology. Emphasis on research and application. Required of all psychology Master's students. (Fall—day; spring—evening)

Hill

2 Psychological Research Methods and Procedures (3)

Required of all graduate programs. Prepares Experimental Psychology and all students for research. (Fall—evening; spring—day)

Walk

3 Readings in Psychology for Graduate Students (3-3)

Selected readings with conferences on selected topics in psychology. Open only to students who have had previous work in the field of the readings. (Academic year—summer 1964)

The Staff

*To graduate students, except by special permission of Department and University of the District of Columbia.

- 209 *Seminar: Psychology of Motivation* (3) Caldwell
A consideration of various theoretical approaches to the psychology of motivation and systematic concepts and experimental findings deriving from each approach. (1964-65 and alternate years: fall-evening.)
- 212 *Personality Evaluation by Projective Techniques* (3) Levy
Primary emphasis upon administration and scoring of the Rorschach Test. Prerequisite: Psychology 233. (Fall-day; spring-evening; summer 1964.)
- 213 *Clinical Psychometrics* (3) Ives
A study of the clinical applications of nonprojective tests. Prerequisite: Psychology 233. (Spring-evening.)
- 215 *Advanced Study of Projective Techniques* (3) Nolan, Ives
Primary emphasis upon interpretation of the Rorschach Test. Prerequisite: Psychology 212. (Fall-evening; spring-day.)
- 217 *Seminar: Developmental Psychology* (3) Ghent
(Fall-day.)
- 218 *Seminar: Clinical Psychology—Psychopathology* (3) Nolan
Covers basic etiological factors in behavioral and psychological deviations and disorders. (Fall-day.)
- 219 *Seminar: Clinical Psychology—Psychotherapy* (3) Nolan
Covers theoretical principles underlying psychotherapy, techniques and procedures, and problems of evaluation. (Spring-day.)
- 220 *Seminar: Abnormal Psychology* (3) Hunt
An intensive study of selected problems in the field of abnormal psychology. (Fall-day; spring-evening; summer 1964.)
- 223 *Seminar: Learning* (3) Finan
Selected topics in the psychology of learning. (Spring-evening.)
- 225 *Seminar: Mental Hygiene* (3) Phillips
A study of mental health problems with special attention to needs of counselors, teachers, and others working with children and adolescents. (Fall-evening; spring-day; summer 1964.)
- 226 *Seminar: Clinical Psychology of Childhood and Adolescence* E. Johnson
(3)
A survey of behavior and personality disorders. (Spring-evening.)
- 227-23 *Seminar: Variations in Psychotherapeutic Approach* (3-3) Kahn
A study of patient needs and demands upon the therapist. Case participation will be actively related upon. Open to qualified students in psychology and related fields, with permission of the instructor. (Academic year—day.)
- 231 *Test Construction* (3) Mosel
The principles underlying test construction; statistical techniques in the construction, evaluation, and standardization of psychological, educational, and vocational tests. Prerequisite: a course in tests and measurements and an elementary course in statistics (1965-66 and alternate years.)
- 233 *Individual Psychological Testing* (3) E. Johnson
Instruction and practice in giving of the Binet and Wechsler tests. Prerequisite: an elementary course in tests and measurements. Material fee, \$7. (Fall and spring-day.)
- 234 *Seminar: Test Theory* (3) Mosel
Development of the axiomatic-deductive theory underlying the major notions in the construction, evaluation, and application of psychological tests. (1964-65 and alternate years: fall-evening.)

23. *Seminar: Psychological Measurement* (3) Hunt
Advanced instruction in the use and interpretation of psychological tests, with emphasis upon group tests; survey of recent research in psychological measurement. Prerequisite: a course in psychological or educational measurement. (1964-65 and alternate years: spring-evening.)
24. *Seminar: Job and Worker Analysis* (3) Maslow
An examination of the principles, techniques, and research findings in the description of work performed and in the analysis of qualifications requirements. (Summer 1964.)
25. *Seminar: Employee Motivation and Morale* (3) Mosel
An analysis of organizational behavior, especially with regard to motivation and productivity. The implications of recent research on employee attitudes, the primary group, the effects of various patterns of supervisory leadership, the role of formal and informal organization, and job design. (Spring—day and evening; summer 1964.)
26. *Seminar: Personnel Measurement Techniques* (3) Mosel
Detailed consideration of the techniques of personnel selection and performance evaluation. The use of employment tests, personal data, assessment interviews, and performance ratings. (1965-66 and alternate years.)
27. *Seminar: Psychological Factors in Design and Operation of Man-Machine Systems* (3) Finan
Includes consideration of psychotechnology versus theoretical psychology, system methodology, personnel selection and utilization, information displays and controls, training, decision making, stress and vigilance, simulation, and evaluation of system performance. Open to qualified students in psychology and engineering, with permission of the instructor. (Fall—evening.)
28. *Seminar: Advanced Social Psychology* (3) Tutthill
Current research and theory in social psychology; group dynamics, ego involvements, action research, and social interaction theory. (Fall—evening.)
29. *Seminar: Group Dynamics* (3) Tutthill
The experimental study of small groups; authentic and democratic group climates; interaction process analysis; Lewin's field-theoretical approach to individual and group processes. (1965-66 and alternate years.)
30. *Seminar: Techniques of Opinion and Attitude Measurements* (3) Tutthill
Methods of attitude measurement (interviews, questionnaires, scales, polls) as currently used by private and governmental investigators. The place of attitude studies in schools, industry, government, etc. (1964-65 and alternate years: spring—evening.)
31. *Theories of Organization* (3) Schlesinger
Theory and research in formal organizations. Classical, human relations, and information processing theories of organizations. The effects of organizational design on communication processes, leadership, decision making, intergroup relations, small group formation, status hierarchies, productivity, motivation, and morale. Open to graduate students in psychology and graduate administrative programs. (1965-66 and alternate years.)
32. *Seminar: Theories of Personality* (3) Cahill
A survey of the various theories of personality, with emphasis upon theoretical problems and methodology in the field of personality study. (Fall—evening; summer 1964.)
33. *Practicum in Counseling* (3-6) Phillips
Supervised practical instruction in agencies doing counseling. Prerequisite: graduate work in counseling. Admission by permission of the instructor. (Academic year—arranged; summer 1964.)
34. *Practicum in Clinical Psychology* (3-6) Levy
Supervised practical instruction in agencies doing clinical psychological work. Prerequisite: Psychology 212. Admission by permission of the instructor. (Academic year—arranged; summer 1964.)

289-90 Seminar: Current Research and Theory in Psychology (3-3)
A review and discussion of contemporary research and theory in some advanced and specialized field of psychological study, by teachers in the field. The specific topic and instructor for each semester will be announced in advance of the beginning of the semester. (Academic year—evening; summer 1964.)

Walk

292 Seminar: Perception (3)
Study of current research and theory in the experimental psychology of perception. (1964-65 and alternate years: spring—day.)

The Staff

295-96 Research in Psychology (arr.)
Individual research by student, carried out under supervision of staff member. (Academic year—as arranged; summer 1964.)

(Acc)

297-98 Seminar: Concepts of Psychology (6-6)

Finan and Staff

Lecture (3 hours), dialogue (1 hour), discussion (2 hours). An overview and analysis of the concepts and major areas of psychology. Designed as a review and integration of knowledge for the Ph.D. candidate preparing for the Comprehensive Examination in general psychology and as a preparation for specialized study and individual research. Required of all Doctoral candidates in psychology. Admission by permission of the instructor. (Academic year—day.)

The Staff

299-300 Thesis (3-3)

(Academic year—as arranged; summer 1964.)

COURSES OFFERED IN COOPERATION WITH OTHER SCHOOLS, COLLEGES, AND DIVISIONS OF THE UNIVERSITY

In addition to the regular courses announced above the University offers the following courses in cooperation with special programs in schools, colleges, and divisions of the University other than Columbian College of Arts and Sciences.

145 Principles of Human Relations (3) (School of Engineering and Applied Science)

149 Human Relations in Management (3) (College of General Studies)

Mosel

245 Employee Motivation and Morale (3)

Especially for students in the School of Government, Business, and International Affairs. (Spring—day and evening; summer 1964.)

White

259 Seminar: Social Psychology of Communism (3)

Psychological aspects of authoritarian systems and of a long-standing political ideology; methods and findings in the study of attitude opinion in the USSR and its satellite countries; problems of Western communication with the USSR; the nature of Communist propaganda and the morale of Communism in non-Communist countries. Especially for students in the Institute for Soviet Studies. (Fall—evening.)

Mosel

261 Seminar: International Communication (3)

The process of communicating information and achieving attitude change across national boundaries. Special emphasis is given to the role of psychocultural factors and the functions of mass communication in the development of transnational societies. Especially for students in the School of Government, Business, and International Affairs. (1964-65 and alternate years: spring—evening.)

Lippitt

262 Behavioral Factors in Social Change (3)

Current research and theory related to the process of social change. Basic principles of planned change will be explored with individual, group, organization, community, and cultural change. Human factors in the change process will be emphasized. Especially for students in the Center for Behavioral Sciences. (Spring—evening.)

264 Sensitivity Training: Human Relations Laboratory Course (3) Lippitt

A sensitivity training experience in human relations. The course is built around an unstructured group experience with opportunities for individual feedback, experimentation, and practice. The goal of the course is the development of self-awareness, situational sensitivity, and diagnostic skills in human relations. Prerequisite: 9 semester hours in psychology or sociology. Especially for students in the Center for Behavioral Sciences. (Fall and spring—evening.)

265 Theory and Design in Human Relations Training (3) Lippitt

Designed for those interested or involved in constructing human relations training. Theories of learning are reviewed. The laboratory approach to human relations training is explored in depth. Practice in designing, developing training skills, and evaluating training. Prerequisite: Psychology 264 or a human relations laboratory learning experience. Especially for students in the Center for Behavioral Sciences. (1965-66 and alternate years.)

Religion*

Professor J. R. Sizoo

Associate Professor R. G. Jones (Chairman)

Assistant Professors H. F. Yelde, Jr., D. D. Williams, Jr.

Lester E. W. Semons

Bachelor of Arts with a major in Religion (Field of Study). Prerequisite: the Arts and Sciences curriculum, page 14, including Religion 9, 20, and 49-60.

During the general requirements, pages 20-24, and the passing of the Religion major examination at the end of the senior year. The constituted field of knowledge upon which the student will be examined includes the history and literature of the world's religions with special emphasis on those of the West and the philosophical and ethical problems of religious thought. A student may elect to give special emphasis in his program of study to one or to Judaism. The Department of Religion provides a preliminary (Religion 10-20) intended to assist the student in preparing for the major examination. A sample concerning a detailed description of the major is available in the office of the Chair of the Department of Arts and Sciences and the Chairman of the Department of Religion.

Religion in Thought and Civilization 101. American Civilization is recommended as a major elective for Religion majors.

Major in Art in the field of Religion. Prerequisite: an undergraduate major in Religion at this University or the equivalent; the following specific courses in Religion: Religion 100, Psychology 1, 2, and 20; Anthropology 1, 2, 3, and 4; a maximum of three of the above, at least two must be in the group religion; a maximum of three may be in a closely related field outside the Department of Religion as approved by the Department.

Major in Art in the field of Religious Education. Prerequisite: an undergraduate major in Religion at this University or the equivalent; the following specific courses in Religion: Religion 100, Psychology 1, 2, and 20; Anthropology 1, 2, 3, and 4; a maximum of three of the above, at least two must be in the group religion; a maximum of three may be in a closely related field outside the Department of Religion as approved by the Department.

Major in Art in the field of the History of Religion in the United States. See the Staff of Instruction in the Department of Religion.

FIRST GROUP

9 *The Old Testament* (3)

A historical and literary approach to the study of the books of the Old Testament with special consideration given to the development of religious ideas, institutions, and outstanding personalities. (Fall—day and evening; summer 1964.)

Jones and Staff

10 *The New Testament* (3)

A study of the literature of the New Testament from the standpoint of occasion, purpose, dominant ideas, and permanent values. Special emphasis on the approach, the structure, and the significance of the Gospels and Epistles. (Spring—day and evening.)

Jones and Staff

59-60 *History of Religions* (3-3)

First half: primitive and ancient national religions; Confucianism, Taoism, Buddhism, Hinduism, and Shintoism—their historical setting, founders, and development of religious thought and culture. *Second half:* Judaism, Christianity, and Islam—analysis of their origin, evolution, and contemporary status. (Academic year—day and evening; summer 1964.)

Wallace, Yeide

SECOND GROUP

103 *The Prophets, Their Times and Their Message* (3)

The development of prophetism in the Old Testament; cultural, economic, psychological, and religious factors in the movement; elements of lasting value in the prophetic teaching. A few of the prophets will be selected for particular study. (Fall—day.)

Yeide

104 *The Life and Thought of Jesus* (3)

A comprehensive study of the life and teachings of Jesus as they relate to problems of belief, standards of value, and patterns of life; the significance of the message of Jesus for our own times. (Spring—day.)

Yeide

105 *The Life and Thought of Paul* (3)

Greek and Hebrew backgrounds of early Christianity, the Roman world of the first century, religious and social conditions affecting the spread of Christianity, the life and journeys of Paul, Paul's teaching and presentation of the Christian faith, the place of the Pauline epistles in the New Testament. (Summer 1964.)

Jones

121 *Problems of Western Religious Thought* (3)

The nature of religious truth and experience; the existence, character, and activity of God; the predicament of modern man; the problem of evil and suffering; eternal life; science and religion; the meaning of worship; religious views of history. (Fall—day.)

Yeide

122 *Christian Ethics and Modern Society* (3)

The nature and principles of the Christian life as developed by the Christian community; problems of personal conduct; the application of the Christian standard to family, social, and economic institutions. (Summer 1964.)

Yeide

131 *History of Christianity to the Reformation* (3)

The rise and expansion of Christianity, the development of Christian thought, the evolution of church organization and worship, the Renaissance and pre-Reformation dissent. (Fall—day.)

Wallace and Staff

132 *History of Modern Christianity* (3)

The origin and development of Protestantism; the Roman Catholic revival; the status of the Eastern churches; doctrines, worship, expansion, church and state, and relation to modern thought and life. (Spring—day.)

Wallace and Staff

135 *History of Judaism to the Talmud* (3)

A study of the history and religious thought of the Jewish people from the Maccabean revolt to the compilation of the Talmud. (Fall—day.)

Seaman

- 106 *History of Medieval and Modern Judaism* (3) Seaman
A study of the history and religious thought of the Jewish people from the compilation of the Talmud to the present. (Spring—day.)
- 11-42 *Religious Education* (3-3)
Principles and practices of religious education in the home, church, and community; basic educational procedures and special techniques; organization and administration of religious education. (Not offered 1964-65.)
- 72 *Religion in American Culture* (3) Wallace
Growth of religious bodies and institutions in American culture, the heritage of religious freedom and diversity, religion and literature, revivalism and education, science and religious thought, divisions and cooperative movements in religion. (Spring—evening; summer 1964.)
- 200 *Proseminar, Readings for the Religion Major* (3-3) Yeide, Wallace
Readings and group discussions. (Academic year—as arranged.)

THIRD GROUP

- 209-10 *Seminar in Biblical Literature* (3-3) Jones
Study of the main problems of Biblical literary and historical criticism. (Academic year—evening.)
- 211-12 *Seminar in Biblical Thought* (3-3) Jones
Study of the Biblical interpretation of history and reality and its relation to Biblical beliefs about God, man, and the world. (Not offered 1964-65.)
- 22 *Seminar in Christian Ethics* (3) Yeide
Study of important tendencies in the ethical reflection of the contemporary Christian Church, giving special attention to the contributions of the social sciences to that reflection. (Spring—as arranged.)
- 23-24 *Seminar in Early and Medieval Christianity* (3-3) Jones, Wallace
An advanced study of the development of Christian thought from primitive beginnings to the Reformation. (Academic year—evening.)
- 25-34 *Seminar in Modern Religious Thought* (3-3)
Analysis of developments in western religious thought from the 16th century to the present. (Not offered 1964-65.)
- 31-42 *Seminar in Religious Education* (3-3)
Advanced course dealing with some of the major problems in the practice of religious education. (Not offered 1964-65.)
- 51 *Seminar in American Religious History to 1800* (3)
Study of religious thought and life during the colonial and early national period. (Not offered 1964-65.)
- 52 *Seminar in American Religious History since 1800* (3) Wallace
Analysis of modern and contemporary trends in American religious thought. (Fall—as arranged.)
- 53-52 *Readings and Research* (3-3) The Staff
Investigation of special problems in the history of religion. (Academic year—as arranged; summer 1964.)
- 53-50 *Thesis* (3-3) The Staff
(Academic year—as arranged; summer 1964.)

RELATED COURSES IN OTHER DEPARTMENTS

Art 115, *Christian Iconography* (3)
 Classical Languages and Literatures 11, 12, *First year Greek* (3, 3)
 Classical Languages and Literatures 13, 14, *Second year Greek* (3, 3)
 Classical Languages and Literatures 21, 22, *First year Classical Hebrew* (3, 3)
 Classical Languages and Literatures 23, 24, *Second year Classical Hebrew*
 (3, 3)
 Sociology 125, *Sociology of Religion* (3)

Romance Languages and Literatures^{*}

Professors A. T. Deibert (*Emeritus*), G. E. McSpadden, L. A. Vigneras, Rafael
 Supervisor, W. C. Child (*Chairman*)
 Associate Professors J. W. Robb, G. E. Mazzeo, J. A. Frey
 Assistant Professors J. L. Moravcsik, Jr., Fred Abrams
 Instructors Elizabeth Newman, C. P. Havé, Elogia Llansa, R. M. Riggs, Ruth
 Weinreb, Carlos Figueroa

Lecturer Esther Lawton

Literature Workshops Supervisor R. T. Tyser

Courses are generally conducted in the language concerned. For General Courses
 in Romance Languages and Literatures (French, Italian, Portuguese, Spanish), see
 page 134.

Bachelor of Arts with majors in (1) *French Language and Literature*, (2) *Spanish
 American Literature*, and (3) *Spanish Language and Literature (Field of Study)*—Pre-
 requisites: the Arts and Letters curriculum, page 14.

Required: The general requirements, pages 20, 21 and the passing of the major ex-
 aminations at the end of the senior year. The coordinated field of knowledge upon which
 the student will be examined includes the political, social, and cultural backgrounds of
 the literature studied, the written and their works. Proficiency in the spoken and written
 language is required. Majors in Romance Languages are strongly advised to study Latin,
 a knowledge of which is generally required for graduate work. The Department provides
 a consultant in each of the major fields intended to assist the student in his preparation
 for the major examination.

Master of Arts in the fields of (1) *French Language and Literature*, (2) *Spanish Amer-
 ican Literature*, and (3) *Spanish Language and Literature*—Prerequisite: the degree of
Bachelor of Arts in the appropriate field from this University, or the equivalent.

Required: the general requirements, pages 27-30. The thirty hours of required work
 must include a thesis, for which six hours of credit are allotted. The remainder of the
 program is arranged in consultation with the student's major adviser.

*Master of Arts in the field of Linguistics (an interdisciplinary degree offered by the
 Department of German, Languages and Literatures and Romance Languages and Litera-
 tures)*—Prerequisite: a Bachelor of Arts degree, preferably with a major in French, Ger-

^{*}The field of Linguistics is the only graduate year field of
 study in the Department of Languages and Literatures.

man, or Spanish at this University, or the equivalent, and the approval of candidacy by the Committee on Linguistic Study.

Required: the personal requirements, pages 27-30, including a thesis and twenty-four semester hours of second-group courses selected in consultation with the chairman of the department directing the Master's program and approved by the Committee on Linguistic Study. The candidate's program will normally be selected from courses in Anthropology, English, French, German, Mathematics, Philosophy, Psychology, and Spanish listed on pages 11-14.

Doctor of Philosophy—See the Graduate Council Catalogue.

Bachelor of Arts in Education with teaching fields in French and in Spanish—Prerequisite: the Education curriculum, page 16.

Required: the French option or the Spanish option and the professional courses listed in the School of Education Catalogue.

FRENCH

FIRST GROUP

1-2 First-year French (3-3)

A year course; credit is not given for the first half until the second half is completed. For beginners. Pronunciation, conversation, grammar, composition, reading of modern French prose. Aural training, oral practice in electronic language workshop. Workshop fee, \$6 a semester. (First half: fall and spring—day and evening; summer 1964.)

The Staff

2X First-year French (3)

An intensive course to which are assigned entering students with one or more years of high school French, whose placement tests show them inadequately prepared for the regular work of French 1. The course meets six hours a week (2 hours of lecture, 2 hours of drill, and 1 hour of workshop) and carries 3 semester hours of credit. The fee is \$143 (the tuition fee of \$100 plus an additional fee of \$25) plus workshop fee \$6. (Fall and spring—day.)

Riggs and Staff

1-2 Second-year French* (3-3)

A year course; credit is not given for the first half until the second half is completed. Conversation, grammar, composition, reading in modern French prose, introduction to French civilization. Aural training, oral practice in electronic language workshop. Workshop fee, \$6 a semester. Prerequisite: French 1-2, 2X, or two years of high school French. (First half: fall and spring—day and evening; summer 1964. Second half: fall—day; spring—day and evening; summer 1964.)

The Staff

1-2 French Conversation and Composition (3-3)

Prerequisite: French 4 or the equivalent and permission of the instructor. (A year—year—day and evening; summer 1964.)

The Staff

1-2 French Readings for Nonmajor Students (3)

Primarily for graduate students preparing for reading examinations. Undergraduates admitted only with specific permission of the instructor. No academic credit for graduate students. (Fall and spring—evening; summer 1964.)

Lawton and Staff

1-2 Survey of French Literature and Civilization* (3-3)

For social, artistic, and cultural background of French civilization. Lectures, readings, discussions, and informal discussions. (A year—year—day and evening; summer 1964.)

Metaviet

*Course 3-4 is required, and French 41-43 recommended, as prerequisites to all second-group courses.

SECOND GROUP*

- 103 *Problems of Pronunciation and Intonation* (3)
Recommended for majors and required for a Bachelor of Arts in Education degree with a teaching field in French. (Fall—day.) Vigneras
- 109-10 *Advanced French Conversation and Composition* (3-3)
Normally dictation will receive greater emphasis in the fall semester and style in the spring semester. Prerequisite: French 10 or the equivalent and permission of the instructor. (Academic year—day; summer 1964—French 109 (3).) Vigneras
- 110-20 *French Literature of the 16th Century* (3-3)
Poetry, drama, and memoirs of the French Renaissance; Rabelais, Montaigne, Marot, La Pléiade, etc. Class analysis of texts, collateral reading. (1965-66 and alternate years.) Mativier
- 121-22 *French Literature of the 17th Century* (3-3)
History, philosophy, criticism, memoirs, letters, eloquence, drama, fiction, poetry. Class analysis of texts; collateral readings. (1964-65 and alternate years: academic year—day.) Riggs
- 123-24 *French Literature of the 18th Century* (3-3)
History, philosophy, criticism, letters, drama, fiction, poetry, the "salons", the idea of progress, the idea of science. Class analysis of texts, collateral reading, lectures on literature and history. (1965-66 and alternate years.) Weinreb
- 125-26 *French Literature of the 19th Century* (3-3)
Romanticism and realism; fiction, poetry, drama, criticism. Class analysis of texts; collateral reading; lectures on literature and history. (1964-65 and alternate years: academic year—evening.) Frey
- 127-28 *French Literature of the 20th Century* (3-3)
Fiction, poetry, drama, criticism. Class analysis of texts, collateral reading, lectures on literature and history. (1965-66 and alternate years.) Clubb
- 129-30 *Contemporary French Literature* (3-3)
Existentialism and surrealism in the novel, poetry, and drama from 1938 to the present. Lectures, discussions, and reports. (Not offered 1964-65.) Clubb
- 199-200 *Proseminar: Readings for the Major in French Literature* (3-3)
Conferences and group discussions. (Academic year—as arranged.) Frey

THIRD GROUP

- 201 *Doctoral Seminar* (3)
Introduction to the doctoral program. Methods of research and presentation in the Romance languages and literatures. (Offered 1965-66.) The Staff
- 202 *History and Methods of Literary Analysis and Criticism* (3)
Literary criticism from Aristotle to the New Critics. Methods to be demonstrated and applied to selected passages from French literature. Emphasis on technique known as *explication de texte*. (Fall—day.) Frey
- 212 *Historical French Grammar* (3)
The phonology, morphology, and syntax of Old French, and its development from Vulgar Latin. Practical exercises based on texts. Prerequisite: a second-semester course in French literature, Romance, or Introduction to Romance Philology and Linguistics (see General Residence Council's 200th Anniversary Knowledge of Latin course 2001). Vigneras

*French 104 is required, and French 11-92 is recommended, as prerequisite to all second-semester courses.

- 213-14 *Old French* (3-3) Vigneras
French literature to the end of the Middle Ages. Prerequisite: a second group course in French literature and the permission of the instructor. (Offered 1965-66.)
- 224 *Seminar: the Age of Rabelais* (3)
Humanism and the Reformation in French letters. Rabelais and the *contours*. Poetry to the *Pleïade*. Research projects, papers, reports. (1965-66 and alternate years.)
- 225 *Seminar: the Age of Montaigne* (3)
Montaigne: the man and the development of his thought. Poetry from the *Pleïade* to Malherbe. Drama. Research projects, papers, reports. (1965-66 and alternate years.)
- 227 *Seminar: the Renaissance in Europe* (3) Clubb
The sources and nature of literary trends in Western Europe from Dante to Calderon, and their relationship to French literature. Readings, papers, and discussion. (1964-65 and alternate years; fall-day.)
- 231 32 *Theater in the 17th Century* (3-3) Clubb
A survey of the development of theatrical arts and the drama. Research papers and reports. Prerequisite: French 121-22 or the equivalent. (1964-65 and alternate years; academic year—day.)
- 234 *Nondramatic Literature of the 17th Century* (A) Clubb
Rationalism and the revolt against authority expressed in literature. Development of classical doctrine. Discussion of texts and cultural settings. (Offered 1965-66.)
- 241 *The Rationalistic Current in the 18th Century* (3) Weinreb
Bayle, Fontenelle, Montesquieu, Voltaire, Rousseau, as philosophers, dramatists, and critics of their age; their contribution to the intellectual evolution of France and Europe. (Fall—day.)
- 242 *Seminar: the French Novel in the 18th Century* (3) Weinreb
Development of the novel in France from *La Princesse de Clèves* to the French Revolution; themes and technique. (Spring—day.)
- 244 *Seminar: Diderot and the Encyclopédie* (3) Weinreb
Diderot's contribution to 18th century novel, drama, and aesthetic criticism; the *Encyclopédie* as emblem of 18th century thinking. (Offered 1965-66.)
- 249 *Romanticism in France* (3) Frey
The theory and practice of romanticism in France; romanticism, the Napoleonic myth, romantic local color, sentimentalism, and religiosity as reflected in a series of novels and poetry. Romantic criticism. The preparation for realism. (Summer 1964.)
- 251 *Naturalism* (3) Frey
Development of theory and style, influence of history, science, philosophy, and art on literary naturalism. Naturalistic criticism. (Offered 1965-66.)
- 252 *Flaubert and French Realism* (3) Frey
Prose style in the novel from Balzac to Flaubert with emphasis on the latter; theories of realism and its stylistic techniques; the works of Balzac, Stendhal, Maupassant, Gautier, Flaubert, and selected contemporary prose. (Spring—day.)
- 253 *Seminar: Symbolism in Poetry* (3) Clubb
The origin and nature of symbolism from Mallarmé to Valéry. Class analysis of texts and reports. Prerequisite: French 121-22 or the equivalent. (Fall—day.)
- 254 *Seminar: Victor Hugo* (3) Frey
Hugo and the development of the romantic ideal in prose and poetry; Hugo and romantic theater and criticism. Analysis, classification, and criticism of romantic theory and techniques in the works of Hugo; contemporary Hugo criticism. (Spring—day.)
- 255 *Seminar: Stendhal and Le Bonisme* (3) Clubb
Stendhal's novels and autobiographical works. Stendhal and Italy. Readings, discussions, and papers. (Offered 1965-66.)

264 Seminar: Modern Period (3)
Poetry, prose, drama (Offered 1965-66)

The Staff

299-300 Thesis (3-3)
(Academic year—as arranged; summer 1964)

SPANISH

FIRST GROUP

1-2 *First-year Spanish (3-3)*

The Staff

A year course; credit is not given for the first half until the second half is completed. For beginners. Pronunciation, conversation, grammar, composition, reading of modern Spanish prose. Aural training, oral practice in electronic language workshop. Workshop fee, \$6 a semester. (First half: fall and spring—day and evening; summer 1964. Second half: fall and spring—day and evening; summer 1964.)

2X *First-year Spanish (3)*

Neyman and Staff

An intensive course to which are assigned entering students with one or more years of high school Spanish whose placement tests show them inadequately prepared for the regular work of Spanish 3. The course meets six hours a week (3 hours of lecture, 2 hours of drill, and 1 hour of workshop) and carries 3 semester hours of credit. The total fee is \$133 (the tuition fee of \$108 plus an additional fee of \$25) plus workshop fee, \$6. (Fall and spring—day.)

3-4 *Second-year Spanish* (3-3)*

The Staff

A year course; credit is not given for the first half until the second half is completed. Conversation, grammar, composition, reading of modern Spanish prose, introduction to Hispanic civilization. Aural training, oral practice in electronic language workshop. Workshop fee, \$6 a semester. Prerequisite: Spanish 1-2, 2X, or two years of high school Spanish. (First half: fall and spring—day and evening; summer 1964. Second half: fall—day; spring—day and evening; summer 1964.)

9-10 *Spanish Conversation and Composition (3-3)*

The Staff

Prerequisite: Spanish 4 or the equivalent and permission of the instructor. Academic year—day and evening; summer 1964.)

49 *Spanish Readings for Nonmajor Students (3)*

Primarily for graduate students preparing for reading examinations. Undergraduates admitted only with specific permission of the instructor. No academic credit for graduate students. (Fall and spring—evening.)

51-52 *Survey of Spanish Literature and Civilization* (3-3)*

Supervia

The social, artistic, and cultural background of Spanish civilization. Lectures, readings, recitations, and informal discussion. (1964-65 and alternate years; academic year—day; 1965-66 and alternate years: academic year—evening; summer 1964.)

SECOND GROUP*

103 *Problems of Pronunciation and Intonation (3)*

McSpadden

Descriptive and practical review of Spanish sounds and inflections. Remedial exercises. Recommended for majors and required for the Bachelor of Arts in Education degree with a teaching field in Spanish. (Fall—day.)

109-10 *Advanced Spanish Conversation and Composition (3-3)*

Mazzeo

Normally diction will receive greater emphasis in the fall semester and style in the spring semester. Prerequisite: Spanish 10 or the equivalent and permission of the instructor. (Academic year—day; summer 1964—Spanish 109 (3).)

* Spanish 3-4 is required, and Spanish 51-52 is recommended, as prerequisite to all second-group courses in Spanish.

- 121-22 *Spanish Literature of the Golden Age* (3-3) Abrams
Lope de Vega, Calderon; the classic drama, the ballad, lyric poetry, prose. Class analysis of texts, collateral reading, lectures on literature and history. (1965-66 and alternate years.)
- 123-24 *Cervantes: Don Quijote* (3-3) McSpadden
Life and works of Cervantes; the *Quijote* and its relationship to other works of the Golden Age. Lectures, discussions, and reports. (1964-65 and alternate years: academic year—evening.)
- 125-26 *Modern Spanish Literature* (3-3) Mazzeo
Prose and poetry of the 18th and 19th centuries. Class analysis of texts, collateral reading, lectures on literature and history. (1964-65 and alternate years: academic year—day.)
- 127-28 *Contemporary Spanish Literature* (3-3) Supervia
Prose and poetry of the 20th century. Class analysis of texts, collateral reading, lectures on literature and history. (1965-66 and alternate years.)
- 129 *The Romantic Drama in Spain* (3) Mazzeo
Class analysis of texts, collateral reading, and lectures on the Spanish Romantic Drama. (Summer 1964 and alternate summers: evening.)
- 151-52 *The Spanish-American Novel* (3-3) Robb
Development of the novel in Spanish America. Lectures, collateral reading, and class analysis of texts. (1965-66 and every third year.)
- 153-56 *Spanish-American Literature to 1880* (3-3) Robb
The literature of Spanish America from the colonial period to the latter part of the 19th century. Lectures, collateral reading, reports, and class analysis of important works. (1966-67 and every third year.)
- 157-58 *Spanish-American Literature since 1880* (3-3) Robb
The literature of Spanish America from 1880 to the contemporary period. Lectures, collateral reading, reports, and class analysis of important works. (1964-65 and every third year: academic year—day.)
- 197-98 *Proseminar: Readings for the Major in Spanish-American Literature* (3-3) Robb
Required of all majors. Conferences and group discussions. (Academic year—as arranged.)
- 199-200 *Proseminar: Readings for the Major in Spanish Literature* (3-3) Abrams, Mazzeo
Required of all majors. Conferences and group discussions. (Academic year—as arranged.)

THIRD GROUP

- 201 *Doctoral Seminar* (3) The Staff
Introduction to the doctoral program, advanced study and methodology in the Romance languages and literatures. (Fall—day.)
- 202 *Explicación de textos* (3) Robb
An analytical introduction to the study of Spanish and Spanish-American literature. The method will be demonstrated and practiced on selected passages. (Spring—day.)
- 212 *Historical Spanish Grammar* (3) McSpadden
Study of phonology, morphology, syntax, and lexicology of Old Spanish, including its development from Vulgar Latin. Practical exercises based on texts. Prerequisite: a second-group course in Spanish literature, Romance 279 *Introduction to Romance*

- Philology and Linguistics* (see General Romance Courses), and an elementary knowledge of Latin. (Offered 1965-66.)
- 214 *Old Spanish* (3)
Literature and language: *El poema de Mio Cid*, *El Conde Lucanor*, *El libro de Buen Amor*, etc. Prerequisite: a second-year course in Spanish literature, Romance 270 *Introduction to Romance Philology and Linguistics* (see General Romance Courses), and an elementary knowledge of Latin. (Spring—day.) McSpadden
- 221 *Seminar: Works of Cervantes* (3)
Problems of composition, interpretation, criticism, literary history, and aesthetics. (Fall—day.) McSpadden
- 223 *Seminar: Drama of the Golden Age* (3)
A study of the Spanish theater from its beginnings to Calderón. Reading and analysis of representative works of Lope, Tirso, Alarcón, Calderón, and the pre-Lopistas. (Fall—day.) Abrams
- 224 *Seminar: the Renaissance in Spain* (3)
Historical and literary aspects of 16th-century Spain. Emphasis on important prose works, mysticism, and lyric poetry. (Offered 1966-67.) Abrams
- 226 *Seminar: the Novel in the Golden Age* (3)
Various manifestations of the novel: chivalric, pastoral, picaresque, with main emphasis on the picaresque. (Spring 1964.) Abrams
- 231 *Seminar: Spanish Writers of the 18th Century* (3)
Lectures and analysis of principal authors and works; relationships with subsequent literary movements. (Offered 1965-66.) Mazzoe
- 242 *Seminar: Spanish Romanticism* (3)
Lectures and analysis of principal authors and works. Collateral reading. (Offered 1965-66.) Mazzoe
- 244 *Seminar: Naturalism and the Spanish Novel* (3)
The development of Naturalism in 19th century Spain. Analysis of representative works of Pío Baroja, Clarín, Baeza, Ibañeta, and others. (Spring—day.) Mazzoe
- 245-46 *Seminar: Works of Galdós* (3-3)
Ideological and stylistic analysis; relationship of his works to the literary movements of the second half of the 19th century. (Academic year—day.) Supervia
- 251 *Seminar: Works of Unamuno and Ortega y Gasset* (3)
A study of their thought, analyses and commentary on the texts. (Offered 1965-66.) Supervia
- 253 *Seminar: Modern and Contemporary Spanish American Poets* (3)
Genesis and development of the Modernist Movement in Hispanic-America and Spain. (Fall—day.) Robb
- 261 *Seminar: Spanish American Essayists* (3)
The Spanish American essay as an artistic form, studied in selected modern essayists such as R. A. Ruiz de Rivas, Vassallo, and Arredondo. (Offered 1965-66.) Robb
- 264 *Seminar: Recent Trends in Spanish-American Fiction* (3)
Contemporary cuentistas and novelists: J. L. Borges, J. J. Arredondo, A. Yáñez, C. Fuentes, E. Galay, and A. Carpentier. (Spring—day.) Robb
- 266 *Seminar: Alfonso Reyes* (3)
Alfonso Reyes the essayist, artist, poet, and complete humanist as studied in his various prose and poetic works. (Offered 1965-66.) Robb
- 299-300 *Thesis* (3-3)
(Academic year—as arranged; summer 1964.) The Staff

GENERAL COURSES IN ROMANCE LANGUAGES AND LITERATURES

- 270 *Experimental Phonetics* (3) McSpadden
History; problems and methods of analysis in the physiological and acoustical branches of phonetics and phonology; their relationships; their application to the Romance languages; and oral aspects of the Romance literatures. (Offered 1965-66.)
- 271 *Comparative Romance Languages and Literatures I (Italian)* (3)
Intensive study of Italian grammar with reference to French, Spanish, and other Romance languages. (1964-65 and alternate years) fall-day.
- 272 *Comparative Romance Languages and Literatures II (Italian)* (3) Clubb
For candidates for the degree of Doctor of Philosophy. The Italian language and literature from Dante to Colucci. Lectures, discussions, exercises, and readings. Prerequisite: Romance 271. *Comparative Romance Languages and Literatures I* or the equivalent. (1964-65 and alternate years) spring-day.
- 273-76 *Comparative Romance Languages and Literatures III-IV* (Portuguese) (3-3) Robb
For candidates for the degree of Doctor of Philosophy. Lectures, discussions, exercises, and readings. (Offered 1965-66.)
- 277-78 *Comparative Romance Languages and Literatures V-VI* (Portuguese) (3-3) Robb
For candidates for the degree of Doctor of Philosophy. Portuguese and Brazilian literatures from Camões to the 20th century. (Academic year-day.)
- 279 *Introduction to Romance Philology and Linguistics* (3) McSpadden
Survey of principles found in the development of the Romance languages and methods of analysis at the present time. A general course for graduate students in the fields of the Romance languages and literatures. Prerequisite: an elementary knowledge of Latin. This course is normally followed by French 212 or Spanish 212. (Offered 1965-66.)
- 280 *Introduction to Romance Stylistics* (3) Frey
Special emphasis will be placed on examples from French and Spanish literature. (Spring-day.)
- 281 *Problems of Teaching Romance Languages and Literatures in College* (3) McSpadden
For candidates for the degree of Doctor of Philosophy. Principles and problems of learning and teaching the language and literature. Apprenticeship in college classes and the language laboratory. (Fall-day; summer 1964.)

Slavic Languages and Literatures*

Associate Professor Helen Yukob-on† (Chairman)

Assistant Professors G. A. Oikovsky, Nadine Popovko

Lecturers Kiril Jazzenko, M. I. Filipovitch, N. Katsch, Victoria Sador, A. A. Schultz

* For a full list of instructors, see the departmental catalog.
† On sabbatical leave spring semester 1964-65.

Bachelor of Arts with a major in Russian (Departmental).—Prerequisite: the Arts and Letters curriculum, page 14.

Required: in addition to the general requirements, pages 20-25, Slavic Languages 91-92 or 93-94, 179-80, and 161-62 or History 145-46, and eighteen semester hours to be selected from second-group courses in Russian.

Russian majors are expected to have a reasonable proficiency in spoken and written Russian, a firm grasp of the fundamentals of Russian grammar, a general comprehension of Russian culture and history, and a general knowledge of Russian literature, as well as some first-hand acquaintance with writings of major Russian writers. Students who are already proficient in Russian, may upon passing an appropriate examination, waive one or all of the first group language courses, as well as up to six hours of second-group language courses.

Bachelor of Arts in Education with a major teaching field in Russian.—Prerequisite: the Education curriculum, page 16.

Required: the Russian option and the professional courses listed in the School of Education Catalogue.

FIRST GROUP

1-2 First-year Russian (3-3)

A year course; credit is not given for the first half until the second half is completed. A beginners' course in fundamentals of grammar and pronunciation with graded reading, oral drill, and written practice. Listening comprehension and oral practice in electronic language workshop. Workshop fee, \$6 a semester. (First half: fall and spring—day and evening; summer 1964. Second half: fall and spring—day and evening; summer 1964.)

Yakobson and Staff

3-4 Second-year Russian (3-3)

A year course; credit is not given for the first half until the second half is completed. Systematic review of grammar. Study of special problems of Russian morphology and syntax. Oral and written reports on assigned topics. Workshop fee, \$6 a semester. (First half: fall—day and evening; spring—evening. Second half: fall—evening; spring—day and evening.)

Yakobson and Staff

5 First-year Russian (6)

Classroom (5 hours), laboratory (2 hours). An intensive, accelerated beginners' course in fundamentals of grammar and pronunciation with graded reading, oral drill, and written practice. Listening comprehension and oral practice in electronic language workshop. Equivalent in coverage to Russian 1-2. Workshop fee, \$10. (Fall—day.)

Yakobson and Staff

6 Second-year Russian (6)

Classroom (5 hours), laboratory (2 hours). An intensive, accelerated course. Systematic review of grammar. Study of special problems of Russian morphology and syntax. Oral and written reports on assigned topics. Equivalent in coverage to Russian 3-4. Workshop fee, \$10. (Spring—day.)

Yakobson and Staff

9-10 Russian Conversation and Composition (3-3)

Listening comprehension; oral and written practice. Prerequisite: Russian 3-4 or permission of the instructor. Workshop fee, \$6 a semester. (Academic year—day.)

The Staff

47 Beginning Russian for Reading Examination Candidates (0)

For graduate students with little or no knowledge of Russian who intend to use the language as a research tool. No academic credit. Tuition fee, \$108. (Fall—evening.)

The Staff

- 49 *Russian Readings for Nonmajor Students* (3) The Staff
Primarily for graduate students preparing for reading examinations. Undergraduates admitted with permission of the instructor. No academic credit for graduate students. Prerequisite: Russian 4 or 47 or the equivalent. (Spring—evening.)
- 91 92 *Introduction to Russian Literature* (3-3)
A survey of Russian literature, in translation, from the earliest periods through the literary masterpieces of the 19th and early 20th centuries. Lecture, recitation, and discussion. (Academic year—evening.)
- 93 94 *Introduction to Slavic (non-Russian) Literature* (3-3) Filipovitch-Nikatch
A survey of non-Russian Slavic literatures, in translation, from the early periods to the present with emphasis on the contemporary scene. Lecture, recitation, and discussion. (Academic year—evening.)

SECOND GROUP

- 101 2 *Readings in Modern Russian* (3-3) Yakobson and Staff
Representative readings in the social sciences and Soviet periodical literature; study of current political terminology, abbreviations, and Soviet idiom. (Academic year—day.)
- 101 4 *Scientific Russian* (3-3) The Staff
Readings in the major fields of Russian contemporary scientific literature. (1964-65 for alternate years; academic year—evening.)
- 109 10 *Advanced Russian Conversation and Composition* (3-3) The Staff
Developing proficiency in oral and written expression. (Academic year—day; summer 1964.)
- 125 *Russian Linguistic Structure* (3) Chavchavadze*
Descriptive treatment of phonology, morphology, and syntax of contemporary Russian. (Fall—evening.)
- 126 *Comparative Russian-English Linguistic Structure* (3) Chavchavadze*
Contrastive treatment of Russian and English phonology, morphology, and syntax, with emphasis on pedagogical applications. (Spring—evening.)
- 141-42 *Russian Literature of the 19th Century* (3-3) Popluko
Lectures, special reports, class analysis of selected works of 19th century Russian literature—in Russian. (1964-65 and alternate years; academic year—evening.)
- 151-52 *Russian Literature of the 20th Century* (3-3) Popluko
Lectures, special reports, class analysis of selected works of 20th century Russian literature—in Russian. (1965-66 and alternate years.)
- 61 62 *Russian Culture* (3-3) Olkhovsky
A survey of Russian cultural heritage from the origins of present Russia to the present. Lecture, recitation, discussion, and individual reports on assigned topics. (Academic year—evening; summer 1964.)
- 161 *Soviet Literature* (3) Popluko
A survey of Soviet literary theories, literary movements, and literary styles in prose fiction, Revolution, and its impact on literature and on writers. The review of the psychological novel; short story; contemporary poetry. (Fall—evening.)
- 171 80 *Advanced Russian for Undergraduate Majors* (1-1) Yakobson
Academic year—(as arranged.)

Revised and effective September 1964

Sociology and Anthropology¹

Professors H. L. Gilbert, H. W. Stephens (*Administrative*)
 Professor of Lectures C. L. Perlman
 Associate Professor R. C. Brown, J. M. Campbell, Joseph Monane (*Research*)
 Assistant Professor P. F. Gallacher
 Lecturer Cynthia Nathan

Bachelor of Arts with a major in Sociology (Departmental).—Prerequisite: the Arts and Letters curriculum, page 14, including Anthropology 1 and Sociology 2, or the equivalent.
Required, in addition to the general requirements, pages 20-25, twenty-four semester hours in Sociology, which must include 148 and 149.
American Thought and Civilization 101 American Civilization is recommended as a senior year elective for Sociology majors.

Bachelor of Arts with a major in Anthropology (Departmental).—Prerequisite: the Arts and Letters curriculum, page 14, including Anthropology 1 and Sociology 2, or the equivalent.
Required, in addition to the general requirements, pages 20-25, twenty-four semester hours in Anthropology, which must include 192.
American Thought and Civilization 101 American Civilization is recommended as a senior year elective for Anthropology majors.

Master of Arts in the field of Sociology.—Prerequisite: the degree of Bachelor of Arts with a major in Sociology at this University or the equivalent.
Required, the requirements, pages 77-80. All courses must be approved in advance in the subject.

Master of Arts in the field of Anthropology.—Prerequisite: the degree of Bachelor of Arts with a major in Anthropology at this University or the equivalent.
Required, the requirements, pages 81-83. All courses must be approved in advance in the subject.

Master of Arts in the field of Linguistics.—See the departments of Germanic Languages and Literatures, page 103, and Romance Languages and Literatures, pages 144-45.

SOCIOLOGY

FIRST GROUP

The Staff

2 *Man, Culture, and Society II† (3)*

(Formerly Sociology and Anthropology 1)

Development of culture and personality, the impact of groups and institutions on man's social behavior. A survey of the fields within sociology. (Fall and spring—day and evening; summer 1963.)

Nathan

11 *American Social Problems (3)*

(Formerly Sociology and Anthropology 2)

Analysis of major social problems confronting the United States. Factors producing social problems; their nature and treatment. (1965-66 and alternate years.)

¹ The Staff of Instruction is for the academic year 1963-64.

² Anthropology 1 and Sociology 2 combine to make a year course, which is prerequisite to all other courses in Sociology and Anthropology.

SECOND GROUP

120. *Aging in Modern Society* (3) Nathan
Aging as a biological and sociological phenomenon; development of old age as a social process with special emphasis on economic dependency and employment; the social role of the aged. (1964-66 and alternate years)
121. *Fields of Social Work* (3)
Introduction to the nature and scope of social work; the development of social work agencies; functions of social case work, social group work, and social action. (1964-66 and alternate years)
122. *Medical Sociology* (3) Brown
Sociological factors and processes which relate to physical and mental health and the sociological analysis of patterns of social relationships in the field of health and medicine; the body as a social system. (1964-66 and alternate years; spring-summer)
123. *Sociology of Religion* (3) Yoda
Introduction to the history of the discipline; analysis of the sociological impact of religion on society; religious and religiously inspired institutions; with special attention to contemporary American situation. (1964-66 and alternate years; fall-day)
124. *Urban Sociology* (3)
The place of the city in the larger society; growth of the city; problems of urban life; urbanization, urbanization, and city planning; includes consideration of urban development. (1964-66 and alternate years)
125. *Race and Minority Groups* (3)
Analysis of the relationships between dominant and minority groups in society; particular emphasis on the Negro; nature and scope of problems; analysis of the phenomena of prejudice. (1964-66 and alternate years; summer 1964)
126. *Social Stratification: Class and Status* (3)
Formerly Sociology and Anthropology 161
Nature of class structure patterns of status; position relations in American society; analysis of class behavior; analysis of contemporary social structure and social mobility. (1964-66 and alternate years; spring-summer)
127. *Social Institutions* (3)
Critical analysis of basic social institutions: family, education, religion, economy, and state in the structure of American Society. (1964-66 and alternate years; fall-summer)
128. *Courtship and Marriage* (3) Stephens
Nature and courtship as social processes; reasons for marriage; marriage laws; date of marriage; factors in marital adjustment; premarital and counseling. (1964-66 and alternate years; summer 1964)
129. *The Family* (3) Stephens
The development of the family as a social institution; parent-child relations; family structure; family formation and family dissolution. (1964-66 and alternate years; fall-day)
130. *Juvenile Delinquency* (3) Perrow
Nature of delinquency; theory; juvenile delinquency; the juvenile court; training schools; and other related topics. (1964-66 and alternate years; spring-summer)
131. *Criminology* (3) Perrow
Nature and development of crime; crime and social systems; crime and information; crime and prevention of crime. (1964-66 and alternate years; spring-summer)
132. *Sociology of Law* (3)
Law as a social phenomenon and an agency of social control; sociological analysis of law; law problems of legal concepts, doctrine, and institutions. (1964-66 and alternate years)

140 *Military Sociology* (3)

The study of the military establishment as one of the important institutions of modern society; an analysis of the distinctive forms of military organization; the social role of the professional military man. (1965-66 and alternate years; summer 1964.)

Monane

144 *Mass Communications* (3)

The communications process; barriers to communication; structure and function of communication in society; content, control, impact, and effects of mass communication. (1964-65 and alternate years; spring-day.)

Brown

146 *Industrial Sociology* (3)

Sociological analysis of work situations, occupational mobility, development of the labor movement, industrial leadership and morale. (1964-65 and alternate years; fall-evening.)

Brown

147 *Sociology of Large Organizations* (3)

Sociological analysis of the structural characteristics of large complex organizations; individual accommodations to such organizations; the impact of the large organizational pattern on American social life. (1964-65 and alternate years; spring-day.)

Brown

148 *Methods of Social Research* (3)

(Formerly Sociology and Anthropology 131)
Analysis of social research techniques and the scientific method; application to social data of the case study, social survey, statistical, sociometric, and experimental methods. (1965-66 and alternate years.)

Stephens

149 *Development of Social Theory* (3)

Systematic study of the important schools of sociological theory, both European and American developments; and evaluation of the scientific contributions of each school. (1965-66 and alternate years.)

THIRD GROUP

221 *Seminar: Current Trends in Sociology* (3)

Analysis and evaluation of recent developments in sociology and an appraisal of the role of systematic theory in sociology. (1964-65 and alternate years; fall-day.)

Geisert

225 *Seminar: Small Groups* (3)

General characteristics of small groups and their measurement; sociography of groups; evaluation of small group theory and sociometry; other techniques of small group research. (1965-66 and alternate years.)

Geisert

226 *Problems of Underdeveloped Areas* (3)

Characteristics and problems of underdeveloped areas; the interrelationship of demographic, economic, social, and cultural factors; measures and techniques to introduce cultural changes. (1964-65 and alternate years; spring-day.)

Geisert

228 *Criminal Behavior: Research and Theory* (3)

A reevaluation of theories of criminal and delinquent behavior, based on recent research findings; implications for the correction and prevention of criminal behavior. (1964-65 and alternate years; fall-day.)

Brown

240 *Sociology of Occupations and Professions* (3)

Analysis of occupational roles, occupational structures and changes within them, recruitment and training, adjustment, problems at various stages of the career, relations between stratification systems, life styles, and occupations. (1964-65 and alternate years; spring-day.)

Brown

241 *Population Problems* (3)

Characteristics of populations, trends in population growth and population pressure, factors influencing population movement, causes of migration, population policies, emigration and birth control. (1964-65 and alternate years; fall-day.)

295-96 *Research* (arr.)

(Academic year—as arranged.)

The Staff

299-300 *Thesis* (3-4)

(Academic year—as arranged, summer 1964.)

The Staff

ANTHROPOLOGY

FIRST GROUP

1 *Man, Culture, and Society I** (1)

(Formerly Sociology and Anthropology 1A)

The Staff

The physical evaluation of man and the origins and development of culture, including a survey of the topic divisions of the field. (Fall and spring—day and evening; summer 1964.)

SECOND GROUP

152 *Physical Anthropology* (3)

A study of human variation past and present, seen as a product of physical and cultural evolution. (Spring—evening.)

Stewart, Angel

153 *Psychological Anthropology* (3)

The relevance of psychoanalytic and learning theories to the cross cultural study of personality. Cultural determinants of personality formation and mental health. (Fall—day, summer 1964.)

Gallagher

154 *Primitive Economics* (3)

The comparative study of pre-industrial systems of production, distribution, and consumption. An inquiry into the applicability of Western laws of economic analysis to non-Western societies. (1964-65 and alternate years; spring—day.)

Gallagher

155 *Primitive Religion* (3)

Concepts of the supernatural in primitive societies. An examination of religious beliefs and practices; the interrelationships of religion, myth, and philosophy. (1964-65 and alternate years; spring—day.)

Campbell

161 *Language and Culture* (4)(Formerly Sociology and Anthropology 161)
The structure and semantics of systems of human communication; linguistic change, the influence of language on world view. (Fall—day.)

Gallagher

172 *Native People of the New World* (5)

A survey of representative Indian groups of the Americas from primitive bands to high civilizations, stressing the persistent nature of diverse cultural responses to universal problems of human existence. (Spring—day.)

Gallagher

173 *Cultures of the Pacific* (3)

A study of the culture, history, and ways of life of the native peoples of Melanesia, Micronesia, and Polynesia. (Spring—day.)

Campbell

202 *New World Archeology* (3)

A survey of pre-Columbian culture history, from man's entry into the Americas during the Pleistocene Ice Age until the time of the first European encounters. (Spring—day.)

Gallagher

183 *Old World Archeology* (3)

A survey of the culture of history of man exclusive of the Americas from the earliest cultural cultures to the advanced civilizations and their secondary routes. (Fall—day.)

Campbell

* Courses 1 and 2 are required for students in the Anthropology major. Courses 3 and 4 are required for students in the Sociology and Anthropology major.

- 192 *Anthropological Theory* (3)
Analysis of the theoretical postulates and assumptions underlying the development of modern cultural anthropology. (Spring—evening.) Campbell
- 193 *Anthropological Methods* (3)
Approaches to literary and field research in linguistics, archeology, and ethnography; conceptual bases and bias in the delineation of problems, in the selection, analysis and organization of data, and in the preparation of the final report. (1964-65 and alternate years: fall—evening.) Campbell

THIRD GROUP

- 261 *Cultural Origins of the New World* (3)
(1965-66 and alternate years.) Campbell
- 262 *Applied Anthropology* (3)
(Formerly Sociology and Anthropology 155)
The use of anthropological methods and techniques in such specific fields as government, business, law, and medicine. (1965-66 and alternate years.) Gallagher
- 263 *Culture Contact and Change* (3)
Western impact on non-Western cultures. The workings and the processes of social change as various cultures and ethical systems interact. (1964-65 and alternate years: fall—as arranged.) Olkhovsky
- 264 *Seminar: Cultural Backgrounds of Russia and China* (3)
Analysis of Russian and Chinese cultures. The indigenous backgrounds of Russia and China in terms of societal structure and social institutions. Topic for 1964-65: A survey of Russian cultural heritage from the origins of ancient Russia to the present period. (Fall—as arranged.) Olkhovsky
- 265 *Cultural Ecology* (3)
A conceptual and empirical examination of the relationship of technology to the natural world. (1965-66 and alternate years.) Campbell
- 285-86 *Research in Anthropology* (arr.)
(Alternate years—as arranged.) The Staff
- 289-90 *Thesis* (3-3)
(Academic years—as arranged; summer 1964) The Staff

Speech*

Professors L. P. Leggette (*Chairman*), C. W. Pettit (*Director of Speech Clinic*), G. F. Henigan, Jr. (*Director of Forensics*), E. L. Stevens
Professor and Lecturer Zelda Fishandler, Edna Monsen
Associate Professor Lee Belski
Associate Professorial Lecturers Zelda Kosh, W. J. Elsen, S. L. Berlinsky, Edwin Shupita, Frances Henry
Assistant Professors K. R. Sanders, R. A. Honeygoosky

* The staff of Instruction is for the academic year 1963-64.

Lecturers Judith Surrey, A. A. Nelson, Florence Lovelace, E. L. Stook
Assistants Joan Regnell, Lois Richards, Ruth Cox

Bachelor of Arts with a major in Speech (Departmental)—Prerequisite: the Arts and Letters curriculum, page 14, including Speech 1, 2, 11, 22.
 Required: the general requirements, see pages 20-24, including the passing of a speech proficiency test early in the program. Speech 101, 121, 124, 171, and a minimum of twelve additional hours in second-group courses in the speech arts or speech science, as approved by the adviser.

American Thought and Civilization 101. *American Civilization* is recommended as a minor-year elective for Speech majors.

Bachelor of Arts with a major in Dramatic Arts (Departmental)—Prerequisite: the Arts and Letters curriculum, page 14, including twelve hours in the lower courses in speech and six hours in English 51-52, 71-72, or 91-92.

Required: the general requirements, page 20-24, including the passing of a speech proficiency test early in the program. Speech 101-2, a minimum of nine additional hours in dramatic arts in the Speech Department and nine hours in dramatic literature in the English Department, as approved by the adviser.

American Thought and Civilization 101. *American Civilization* is recommended as a minor-year elective for Dramatic Arts majors.

Master of Arts in the field of Speech, Rehabilitation—Prerequisite: the degree of Bachelor of Arts with a major in Speech from this University, or the equivalent.

Required: the general requirements, page 20-24.

Master of Fine Arts in the field of Dramatic Arts—Prerequisite: the degree of Bachelor of Arts from this University, or the equivalent.

Required: the general requirements, see pages 20-24, twelve to eighteen hours of second and third-group courses in drama and dramatic literature offered in courses, and six to twelve hours in theater offered at the Arena Stage. For detailed information, consult the Chairman of the Department.

Bachelor of Arts in Education with a teaching field in Speech—Prerequisite: the Education curriculum, page 14.

Required: the Speech option and the professional courses listed in the School of Education Catalogue.

FIRST GROUP

A *Speech Clinic*

Individual or group lessons, without academic credit, for such speech difficulties as larynx, soft palate, articulatory problems, and stuttering. Fee for individual lesson, \$1; for group lesson, \$2. (Academic year—as arranged; summer 1964.)

B *American Speech for Foreign Students (3-3)*

Class limited to foreign-born students. Instruction in the pronunciation of the sounds of spoken English, with emphasis on rhythm and inflection. The International Phonetic Alphabet is used. Recording fee, \$2 a semester. (Academic year—day and evening; summer 1964.)

1 *Effective Speaking (3)*

Preparation and delivery of extempore speeches, developing confidence and poise, body and voice control; selecting and organizing material. Recording fee, \$2. (Fall and spring—day and evening; summer 1964.)

2 *Persuasive Speaking (3)*

A continuation of Speech 1, which is prerequisite, with emphasis on speech composition and elementary principles of persuasion. (Fall—day; spring—day and evening.)

11 *Voice and Diction (3)*

Developing ease, naturalness, and clarity in the speaking voice. Analysis of individual voices through recordings. Phonetic approach to the study of the sounds of English.

the standards of speech. Class instruction in the problems of rate, volume, pitch, and quality. Recording fee, \$4. (Fall and spring—day and evening; summer 1964.)

32 Oral Reading (3)

Reading to others theory and practice in the problems of interpreting the printed page. Prerequisite: Speech 11. Recording fee, \$4. (Fall—day; spring—day and evening; summer 1964.)

Legett and Staff

SECOND GROUP

101 Phonetics (3)

The International Phonetic Alphabet and its applications to the student's own speech improvement; also its application to such fields as theater, public speaking, speech correction, radio, television, and foreign languages. Prerequisite: Speech 11. Recording fee, \$4. (Fall—day.)

Honeygosky

102 Oral Interpretation of Literature (3)

Theory and practice in the problems of communicating meaning and emotion. Students for study include poetry, prose, and drama. Prerequisite: Speech 32. Recording fee, \$4. (Spring—day.)

Legett

111 Effective Speech Communication (3)

The tools and principles of effective speech communication, including practice in organization, delivery, and the evaluation of presentations commonly encountered by professional personnel. Not open to speech majors. (Not offered 1964-65.)

Elsen

121 Group Discussion and Conference Leadership (3)

The process of thinking and problem solving in committees and small groups, and the methods of leading discussion and conference. Prerequisite: 6 hours of speech or the permission of the instructor. (Fall—day; spring—evening; summer 1964.)

Stevens

126 Public Discussion and Debate (3)

Principles and types of public discussion and debate; practice in argumentative speaking on questions of current interest. Prerequisite: 6 hours of speech or the permission of the instructor. (Spring—day.)

Henigan

127-29 Advanced Debate Practice (1-1)

Admission by permission of the instructor, after one semester of satisfactory participation in the intermediate debate program. This course may be repeated for a total of 4 semester hours. (Academic year—as arranged.)

Henigan

133-34 Radio and TV Broadcasting (3-3)

A study of the development of the radio and TV industries; station organization and management; equipment; production techniques; practice in the preparation and production of radio programs. Recording fee, \$5 a semester. (Academic year—as arranged.)

Shack

135-36 Radio Workshop (1-1)

Practical work in campus radio station. (Academic year—as arranged.)

The Staff

141 Public Speaking: Advanced Forms (3)

The presentation and presentation of speeches for formal occasions with emphasis on the psychology of the audience. Prerequisite: 6 semester hours of speech. (Fall—day.)

Henigan

145 Speech Criticism (3)

A study of classical theory with application to the problems of representative American and British oratory. Admission by permission of the instructor. (Not offered 1964-65.)

Henigan

157 Acting (3)

Study and practice in the fundamentals of acting technique. Prerequisite: Speech 32. Laboratory fee, \$5. (Fall—evening.)

Legett

- 154 *Play Production* (3) Leggette
 Fundamentals of play production. Under the supervision of the instructor, students prepare one-act plays for presentation. Laboratory fee, \$5. (Spring—evening.)
- 155-56 *Play Production Practice* (1-1) The Staff
 Practical work in theater. (Academic year—as arranged.)
- 157 *Workshop in Producing Shakespeare* (4) Chamberlain*
 Participation as a company member in the Shakespeare Summer Festival production at the outdoor Sylvia Theatre on the Washington Monument grounds. Class work in the interpretation of Shakespeare culminating in a show case production. Hours arranged with Company rehearsal and performance. Registration limited. Application must be made by May 15 to the Dean of the Summer Sessions.
- 166 *History of the Theater* (3) Nilles
 A general survey of the rise of the theater, the Classical, Medieval, Renaissance, later English and Continental, and the Modern theater. (Spring—evening.)
- 169 *Creative Dramatics* (3) Lowndes
 A study of creative dramatics and its use as a learning tool. (Fall—evening.)
- 170 *Children's Theater* (3) Lowndes
 Theory and practice in creating and producing plays for children. (Spring—evening.)
- 171 *Introduction to Speech Disorders* (3) Pettit
 A survey of the disorders of speech, including symptomatology, testing, causation, and principles of therapy. (Fall—evening.)
- 173-74 *Speech Therapy* (3-3) Honeygosky
 Clinical techniques and procedures involved in the correction of the disorders of speech. Prerequisite for Speech 173: Speech 171 or concurrent registration. Prerequisite for Speech 174: Speech 182 or concurrent registration and permission of the instructor. (Academic year—evening.)
- 176 *Speech, Hearing, and Language Development* (3) Henry
 Study of normal speech from cognitive processes to articulation, normal development of auditory function and the emergence of language. (Spring—evening.)
- 177-78 *Clinical Practice in Speech Therapy* (1-1) The Staff
 Supervised case work in remedial speech—the University Speech Clinic, Children's Hospital, District of Columbia Council of Children's Services, and Public School system. Weekly meetings to discuss therapeutic techniques for the various speech problems. This course may be repeated for a total of 6 semester hours. Prerequisite: Speech 182, 171, 173, and permission of the instructor. (Academic year—as arranged, summer 1964.)
- 182 *Hearing Problems and the Testing of Hearing* (3) Shuttis
 A study of the field of audiology with emphasis on the testing of hearing. (Spring—evening.)
- 183-84 *Clinical Practice in Hearing Therapy* (1-1) The Staff
 Supervised case work with persons handicapped with hearing losses—the University Speech Clinic, the Washington Hearing Society and Children's Hospital. Prerequisite: Speech 182 and permission of the instructor. (Academic year—as arranged, summer 1964.)

THIRD GROUP

- 251 *Rehearsal and Performance* (2 to 4) Arena Stage Staff
 A course putting into practice the principles and techniques of acting through participation in play rehearsals and performances at the Arena Stage. Admission by audition or interview. (Fall and spring—as arranged.)
- *Application for summer 1964.

- 254 *Directing Problems* (2 to 4) Arena Stage Staff
Observation and participation in solving the problems involved in directing plays. Admission by interview. (Fall and spring—as arranged.)
- 255 *Techniques of Staging* (2 to 4) Arena Stage Staff
Application of theory and principles of scene design, costuming, lighting, make up, and related stage technique. Admission by interview. (Fall and spring—as arranged.)
- 263 *Theater Management* (2 to 4) Arena Stage Staff
Theory and practice in the psychology of handling the public: promotion, box office, and house management. Admission by interview. (Fall and spring—as arranged.)
- 264 *Producing Problems* (2 to 4) Arena Stage Staff
Problems involved in producing community and professional theater. Admission by interview. (Fall and spring—as arranged.)
- 270 *Anatomy and Physiology of Speech and Hearing* (3) Henry
Study of the gross structure of articulation, phonation, respiration, and hearing. (Fall—evening.)
- 270 *Neurophysiology of Communication* (3) Henry
Study of peripheral and central nervous systems and their involvement in speech, hearing, and language. (Spring—evening.)
- 273 *Advanced Audiology* (3) Shuts
Advanced problems and testing techniques in audiology. (Fall—evening.)
- 284 *Dynamic Phonetics* (3) Henry
Techniques and instrumentation for examining speech. (Fall—day.)
- 285 *Childhood Aphasia* (4) Monson
Designed to popularize speech therapists and teachers of exceptional children with the McGuffey's Association Method of rehabilitation; background lectures dealing with neurological, psychological, and psychiatric aspects of language disorders in children; current theories and practice in therapy. Observation and clinical practice with classes of aphasic children at the Children's Hospital School for Aphasic Children. Prerequisite: undergraduate degree in speech and hearing, special education, or allied fields. (Summer 1964.)
- 296 *Differential Diagnostics* (3) Pettit and Staff
Emphasis for clinical observation; techniques in history taking, patient counselling, and assessment. (Not offered 1964-65.)
- 297-298 *Seminars in Communicology* (3-3) Pettit and Staff
Extensive study of specific problems in aphasia, cleft palate, mental retardation, stuttering, and other speech disorders. (Academic year—evening; summer 1964—Speech 297 (3).)
- 294 *Research in Dramatic Art* (arr.) The Staff
(Spring—as arranged.)
- 295-96 *Research in Speech and Hearing* (arr.) The Staff
(Academic year—as arranged; summer 1964—Speech 295 (3).)
- 299-300 *Thesis* (3-3)
(Academic year—as arranged; summer 1964—Speech 299 (3).)

RELATED COURSES IN OTHER DEPARTMENTS

- Classical Languages and Literatures 71-72, *Greek and Roman Backgrounds in Literature* (4-5)
- English 125, *Introduction to English Linguistics* (3)
- English 135-36, *Shakespeare* (3-3)

- English 175-76, *American Drama* (3-3)
 English 183-84, *The English Drama* (3-3)
 English 235-36, *Studies in Shakespeare and His Contemporaries* (3-3)
 Education 134, *Student Teaching in Secondary Schools* (6 to 9)
 Education 137, *Teaching Speech* (2 to 4)
 Psychology 115, *Psychology of Language and Communication* (5)

Statistics*

Professors E. H. Johnson, H. F. Bright (*Chairman*), Solomon Kullback, Minor Szwedziński (*Visiting*)

Professorial Lecturers Samuel Greenhouse, Seymour Grisset, Morris Kupperman, Ira Cisin

Associate Professorial Lecturers Arnold Heyl, W. M. Wolman

Assistant Professor R. E. Thomas

Lecturers S. J. Armore, Fred Frishman, Selig Starr

Bachelor of Arts or Bachelor of Science with a major in Mathematical Statistics (*Departmental*).—Prerequisite: the Arts and Letters or the Science curriculum, respectively, pages 14-15, including Mathematics 23 or 24 or 25, and Statistics 91. Required: the general requirements, pages 22-25, including Mathematics 24, Statistics 97, 108, 155, 157, 50, and six additional hours of second-group Statistics courses selected with the approval of the adviser; a minimum of twenty-four semester hours of courses in other departments approved by the adviser as contributing to a well-organized program. For further details, consult the adviser.

Master of Arts or Master of Science in the field of Mathematical Statistics.—Prerequisite: a Bachelor of Arts or Bachelor of Science degree, respectively, with a major in Mathematical Statistics at this University, or the equivalent. Required: the general requirements, pages 22-25, including a thesis in Statistics and at least twelve hours to be selected from approved third-group courses in Statistics. The program must be selected in consultation with the adviser.

Doctor of Philosophy.—See the Graduate Council Catalogue.

Bachelor of Business Administration or Master of Arts in Government with a major in Business and Economic Statistics.—See the School of Government, Business, and International Affairs Catalogue.

FIRST GROUP†

51 *Introduction to Business and Economic Statistics* (3)

Lecture (2 hours), laboratory (2 hours). Survey of elementary principles and procedures for presenting, analyzing, and interpreting statistical data; consideration of abstract values; measures of variability; sampling processes; index statistics; time series analysis; and simple correlation. Prerequisite: one semester year in algebra. Laboratory fee, \$9. (Fall and spring—day and evening sessions [1994].)

The Staff

† The Staff of Instruction is for the next even year 1992-94.
 ‡ In first-year courses, Statistics 51, 52, and 53 are required in their subject matter, and credit hours for one of the three may be applied toward a degree. Statistics 51, for students of this group, may be taken for degree credit in consultation with any one of the other three.

- 52 *Mathematics of Finance* (3) The Staff
Lecture (3 hours). Interest and discount, annuities, valuation of stocks and bonds, sinking funds, amortization, valuation of depreciable assets, depreciation. Prerequisite: one entrance unit in algebra. (Fall and spring—evening.)
- 53 *Introduction to Statistics in Psychology and Education* (3) The Staff
Lecture (2 hours), laboratory (2 hours). Sources of data, tabulation, charts and graphs, averages, dispersion, quartiles and percentiles, raw scores and derived scores, frequency distributions, reliability and validity of tests, normal curve, correlation, elementary sampling, and an introduction to estimation and tests of hypotheses. Prerequisite: one entrance unit in algebra. Laboratory fee, \$9. (Fall and spring—day and evening; summer 1964.)
- 91 *Principles of Statistical Methods** (3) The Staff
Lecture (2 hours), laboratory (2 hours). Variates and attributes, averages and dispersion, frequency distributions and their characteristics, regression and correlation, statistical decision processes. Prerequisite: one entrance unit in algebra. Laboratory fee, \$9. (Fall—evening; spring—day; summer 1964.)

SECOND GROUP

- 104 *Statistics in Psychology and Education* (3) Cisin
Lecture (2 hours), laboratory (2 hours). Introductory study of statistical techniques necessary for application of statistics in research problems in psychology and education. Laboratory fee, \$9. (Fall—Saturday morning; summer 1964.)
- 105 *Statistics in Psychology and Education* (3) Cisin
Lecture (2 hours), laboratory (2 hours). Advanced study of statistical techniques necessary for an application of statistics in research problems. Analysis of variance, correlation techniques, chi-square applications, and sampling theory. Prerequisite: Statistics 53 or 104. Laboratory fee, \$9. (Spring—Saturday morning.)
- 106 *Factor Analysis* (3)
Mainly theory as applied to factor analysis, introduction to the concepts of factor analysis and their utility in various phases of research. Prerequisite: Statistics 105 or its equivalent. Laboratory fee, \$9. (1965-66 and alternate years.)
- 107 *Statistics for Engineers* (3) The Staff
Simple probability models, discrete and continuous distributions, sampling, hypothesis testing and estimation, nonparametric tests. Emphasis on engineering applications. Prerequisite: differential and integral calculus. (Fall and spring—evening.)
- 110 *Quality Control Techniques* (3) The Staff
Applications of probability and distribution theory to industrial control problems, use of quality control charts, acceptance sampling plans, estimation of lot and process characteristics. Prerequisite: Statistics 51 or permission of instructor. (1964-65 and alternate years; spring—evening.)
- 111 *Business and Economic Statistics I* (3) Johnson
Statistical problems as related to the problems of business and economic research with emphasis on decision making under conditions of uncertainty. Topics include averages, dispersion, analysis of variance, correlation, quality control, and index numbers. Prerequisite: Statistics 51 or permission of instructor. (Fall—day and evening.)
- 112 *Business and Economic Statistics II* (3) Johnson
Statistical problems of business and economics with emphasis as a tool of analysis. In addition to principles and use of linear programming, queue theory and queueing theory techniques. Study of various economic relationships, including demand, supply, and price.

* Statistics 91 is the traditional course for students in engineering and in the biological and physical sciences.

ply, cost and price functions. Prerequisite: Statistics 111 or equivalent. (Spring—day and evening.)

117 *Analysis of Variance I* (3)

Thomas

Lecture (2 hours), laboratory (2 hours). The analysis of variance to segregate factors producing significant variation; a method to estimate experimental error; multiple classification; Latin Square, Green-Latin Square, factorials; an introduction to model theory. Prerequisite: Statistics 91. Laboratory fee, \$9. (Fall—evening.)

118 *Correlation and the Chi-square Test I* (3)

Thomas

Lecture (2 hours), laboratory (2 hours). Regression and correlation theory; simple, partial, and multiple; nonparametric methods; analysis of covariance; contingency table analysis; tests of goodness of fit. Prerequisite: Statistics 91, laboratory fee, \$9. (Spring—evening; summer 1964.)

122 *Forecasting Principles and Techniques* (3)

Johnson

Survey and appraisal of techniques for measuring the state of business conditions and an examination of current methods. Study of procedures for estimating future values; budget requirements, price levels, or level of general business activity. Prerequisite: Statistics 51 or the equivalent. (1965-66 and alternate years.)

123 *Introduction to Econometrics* (3)

Johnson

A basic quantitative approach to fundamental problems in economic theory involving the use of statistical processes, stochastic model construction, and probability considerations. Prerequisite: elementary course in Economics and Statistics. (1965-66 and alternate years.)

155 *Introduction to Mathematical Probability* (3)

The Staff

Probability distributions, Bayes' theorem and posterior, Bernoulli's theorem and its extensions; combinatorial, mathematical expectation, laws of large numbers. Prerequisite: permission of instructor. (Fall—day; spring—evening.)

155-2 *Mathematical Statistics* (3, 3)

Kappelman

Distribution theory, sampling theory, estimation, hypothesis testing, confidence intervals, regression analysis, experimental design. Prerequisite: differential and integral calculus. (Academic year—day and evening.)

167 *Theory of Sampling* (3)

Bright

Problems of sampling and sample design. Admission by permission of the instructor. (1965-66 and alternate years.)

168 *Nonparametric Statistical Inference* (3)

Bright

Statistical inference when the form of the underlying distribution is unknown, sign test, rank order statistics, theory of runs, nonparametric discriminant analysis. (1965-66 and alternate years.)

189-90 *Mathematical Probability and Applications* (3, 3)

Staff

Combinatorial analysis, conditional probability and stochastic independence, probability distributions, laws of large numbers, moment events, random walks, Markov chains, simple time-dependent stochastic processes. Prerequisite: Statistics 155 or permission of instructor. (Academic year—evening.)

191 *Statistical Mathematics** (3)

The Staff

Problems in statistics with the development of real variable theory necessary for their solution. Prerequisite: differential and integral calculus. (Spring—evening.)

191 *Statistical Mathematics** (3)

The Staff

Problems in statistics with the development of complex variable theory necessary for their solution. Prerequisite: differential and integral calculus. (Fall—evening.)

195-96 *Reading and Research in Statistics* (arr.)

The Staff

Academic year—as arranged.)

*Statistics 189 and Statistics 191 and 192, if the statistics are necessary for all disciplines.

197 *Digital Computer Programming with Applications* (3)

Lecture (2 hours), laboratory (2 hours). The use of the digital computer for numerical and other computational work. Machine language, SPS and FORTRAN programming. Writing, debugging, and running programs on the digital computer using the IBM 160 in the University Computing Center. Prerequisite: permission of the instructor. Laboratory fee, \$20. (Fall and spring; day and evening) summer 1961

Bright

THIRD GROUP*

207-8 *Operations Analysis* (3-3)

Basic concepts and techniques of operations analysis as applied to problems in business management and economic research. An introduction to the processes of linear programming, game theory, and queueing theory. Admission by permission of the instructor. (1964-65 and alternate years; academic year—day.)

Bright

217-18 *Experimental Design* (3-3)

Advanced theory of the application of the linear and other hypotheses to experimental design. (1965-66 and alternate years)

257-58 *Advanced Mathematical Statistics I* (3-3)

Distribution functions, sequences of random variables, characteristic functions, sampling theory, linear statistical estimation. (Academic year—evening.)

Kupperman

259-60 *Advanced Mathematical Probability* (3-3)

Markov theorem and asymptotic laws, elementary theory of definite integration; limit theorems in probability. (1965-66 and alternate years)

Kullback

261-62 *Information Theory for Engineers* (3-3)

The elements of information theory and its statistical and probabilistic background from an elementary point of view. (nonmeasure-theoretic) Measures of information, entropy, and their properties. Discrete stochastic sources, message ensembles. The transmission of information, channel channel capacity. Encoding and decoding in channel error detection and correction. The fundamental theorems of information theory. (1964-65 and alternate years; academic year—day.)

Kupperman

263-64 *Advanced Mathematical Statistics II* (3-3)

Statistical estimation, tests of hypotheses, sequential analysis, statistical decisions in fact tests, time series, multivariate statistical theory. (Academic year—evening.)

Greenhouse

265-66 *Multivariate Analysis* (3-3)

A year course; credit is not given for the first half until the second half is completed. Tests of significance, generalized variance and covariance, tests of independence, canonical and vector correlations, multivariate normal distribution, generalized Student's ratio, problems of estimation, applications to factor analysis. (1965-66 and alternate years.)

Geisser

267-68 *Characteristic Functions* (3-3)

A year course; credit is not given for the first half until the second half is completed. Fourier integrals, set functions, inversion formulas, limit theorems, applications to the distribution problem in statistics. (1964-65 and alternate years; academic year—evening.)

The Staff

269 *Sequential Testing* (3)

(1964-65 and every third year; fall—evening.)

The Staff

270 *Statistical Decision Theory* (3)

(1964-65 and every third year; spring—evening.)

The Staff

271-72 *Statistical Information Theory* (3-3)

A year course; credit is not given for the first half until the second half is completed. Basic concepts, definitions, and formulas of information theory; their significance and applications. (1964-65 and alternate years; academic year—day.)

Kullback

* Mathematics 101 and Statistics 101 and 102 in the curriculum are prerequisites to all third-year courses.

general properties. Studies in coding theory, channel capacity, and transmission of information; inequalities of information theory and probability; applications to statistical problems of discrimination and hypothesis testing. Asymptotic distribution theory of information; analysis of contingency tables; loss of information due to grouping of sequential analysis; continuation of experiments. (1965-66 and alternate years.)

27-74 *Stochastic Processes* (3-3) Kullback

A year course; credit is not given for the first half until the second half is completed. Fundamental notions of stochastic processes, random walks; Markov processes; diffusion processes; Gaussian processes; applications. (1964-65 and alternate years; academic year—evening.)

35-96 *Reading and Research* (3-3) The Staff

Admission by permission of the instructor. (Academic year—as arranged.)

27 *Seminar: Problems in Mathematical Statistics* (1)

Summer 1964.)

29-300 *Thesis* (3-3)

(Academic year—as arranged.)

The Staff

COURSES OFFERED IN SPECIAL PROGRAMS

In addition to the regular courses mentioned above the University offers the following courses for students enrolled in the following special programs: Navy Graduate Financial Management Program, Air Force Advanced Management Program, Engineering Administration, and Health Care Administration.

101-2 *Basic Principles of Statistical Methods* (3-3)

Variables and attributes, averages and dispersion, elementary principles of sampling, introduction to the making of statistical decisions.

115 *The Bases of Statistical Decision Making* (arr.)

Introduction to the techniques of decision making, with emphasis on applications rather than theory. Includes: normal distribution, normal distribution, Type I and II errors, estimation, research methodology, and problems of inference.

120 *Principles of Statistical Analysis* (3)

Introduction to the basic concepts of statistical analysis, measures of central tendency, dispersion, normal distribution, basic statistical inference including estimation and testing hypotheses.

200 *Managerial Statistics and Quality Control* (3)

The application of statistical techniques and practices to management and quality control. Emphasis is placed on the use of statistical techniques in making management decisions, controlling quality and standardization. Prerequisite: Statistics 101 or the equivalent.

Zoology*

Professors I. B. Hansen (Chairman), E. G. Mortenson, S. C. Manson, A. H. Osmond
 Professorial Lecturer K. C. Kates
 Assistant Professor R. J. Leach
 Lecturer J. R. Buchheit

* The list of instruction is for the academic year 1963-64.

Bachelor of Arts or Bachelor of Science (Field of Study).—Prerequisite: the Arts and Letters or the Science curriculum, respectively, pages 14-15, including Biology 1-2 and Chemistry 11-12.

Required: the general requirements, pages 20-24, and the passing of the Zoology major examination at the end of the senior year. The correlated knowledge upon which the student will be examined includes the following fields: (1) classification, structure, and ecological relations of animals, both invertebrate and vertebrate; (2) embryological development and life histories of important animal types; (3) general principles of physiology, heredity, and evolution; (4) the development of biological principles, hypotheses, and theories as revealed in the study of the history of zoology.

Bachelor of Arts or Bachelor of Science with a major in Biology (Departmental).—This interdepartmental major may be arranged in consultation with the Department of Botany. Prerequisite: the Arts and Letters or the Science curriculum, respectively, pages 14-15, including Biology 1-2, in the curriculum.

Required: in addition to the general requirements, pages 20-24, a minimum of twenty-four semester hours of second group courses which should include at least six hours in Botany, six in Zoology, and six in two departmental courses.

Master of Arts or Master of Science in the field of Zoology.—Prerequisite: the equivalent of a Bachelor of Arts or Bachelor of Science degree, respectively, from this University with a major in Zoology or Biology.

Required: the general requirements, pages 27-30.

Master of Arts or Master of Science in the field of Biology.—This interdepartmental field may be arranged in consultation with the Department of Botany. Prerequisite: the equivalent of a Bachelor of Arts or Bachelor of Science degree, respectively, from this University with a major in Zoology, Botany, or Biology.

Required: the general requirements, pages 27-30.

Doctor of Philosophy (in a field of Zoology or Biology).—See the Graduate Council Catalogue.

Bachelor of Arts in Education with a teaching field in Biology.—Prerequisite: the Education curriculum, page 16.

Required: the Biology option and the professional courses listed in the School of Education Catalogue.

BIOLOGY

FIRST GROUP

1-2 *Introductory Biology** (4-4)

An interdepartmental course. Lecture (2 hours), laboratory (4 hours). This course is designed to provide the non-science student with an understanding of the life sciences and to serve as a basis for those who may wish to continue in some aspect of biology. It is the introductory course leading to all second- and third-group courses in biology and zoology, and is taught jointly by the staff members of the two departments. Designed to be taken in either sequence; students may be registered for either 1 or 2 at the beginning of the academic year, depending on laboratory space available. Mandatory fee, \$10.00 semester. (*Biology 1: Plant Sciences* (4); fall and spring—day and evening sessions, 1964.) (*Biology 2: Animal Sciences* (4); fall and spring—day and evening sessions, 1964.)

ZOOLOGY

SECOND GROUP

101-2 *Invertebrate Zoology* (3-3)

Lecture (1 hour), laboratory (4 hours). A systematic study of invertebrate forms, including the morphology, physiology, classification, life histories, and phylogenetic relationships. Mortensen

* pages 1-2 is prerequisite to all second-group courses in Zoology, except by permission of the instructor.

ships. Material fee, \$8 a semester. (1964-65 academic year—day; 1965-66 academic year—evening.)

143.4 *Comparative Vertebrate Anatomy* (3-3) Leach

Lecture (1 hour), laboratory (4 hours). Lectures on the organ systems of the vertebrates, laboratory discussions of types. Material fee, \$11 a semester. (1964-65 academic year—day and evening; 1965-66 academic year—day.)

148 *Organic Evolution** (3) Munson

Theories of organic evolution and present ideas on the principle lines of development in the plant and animal kingdoms; review of the contributions to an understanding of the mechanisms involved in this process. (1964-65) spring—evening; 1965-66) spring—day.)

151.16 *Cytology** (3-3)

Lecture (1 hour), laboratory (4 hours). The morphological and physicochemical properties of plant and animal cells and their components. Preparation of material for study. Prerequisite: one year of chemistry and two years of biological sciences. Material fee, \$11 a semester. (Academic year—day.)

152 *Genetics** (3) Stewart

A lecture course in which the general principles are illustrated with specific examples of inheritance in plants and animals, including man. (Fall—evening; 1964 and alternate summers.)

159.40 *Cell Physiology** (3-3) Shropshire, Weintraub

The fundamental physiology of protoplasm. Prerequisite: Chemistry 12. (Academic year—evening; 1965 and alternate summers.)

157 *Introduction to Vertebrate Embryology* (3) Hansen

Lecture (1 hour), laboratory (4 hours). Origin and early development of the individual, formation of organ systems. Emphasis on the frog, chick, and man with reference to the human embryo. Material fee, \$11. (1964-65 and alternate years: fall and spring—day; 1965-66 and alternate years: fall and spring—day and evening; summer 1964.)

142 *Histology* (3) Desmond

Lecture (1 hour), laboratory (4 hours). Introduction to the microscopical anatomy of animal tissues and organs. Material fee, \$11. (1964-65 and alternate years: fall and spring—day; 1965-66 and alternate years: fall and spring—day and evening.)

152 *Protozoa* (3) Mortensen

Lecture (1 hour), laboratory (4 hours). Introduction to the protozoa: classification, life histories, and physiology, with special emphasis on free-living types. Material fee, \$8. (1965-66 and alternate years: spring—evening.)

155 *Parasitology* (3) Kates

Lecture (1 hour), laboratory (4 hours). An introduction to the study of animal parasitology, with a survey of parasite types from the protozoa through arthropods. Material fee, \$11. (1965-66 and alternate years: fall—evening.)

157 *Comparative Endocrinology* (3) Leach

A study of the endocrine systems of the vertebrate classes. Differences and similarities between endocrine mechanisms of fish, amphibians, reptiles, birds, and mammals will be included to illustrate broad trends of evolution in endocrine systems. (Fall—day.)

161 *Entomology* (3) Munson

Lecture (1 hour), laboratory (4 hours). A study of the elementary morphology, physiology, and ecology of insects with an introduction to the taxonomy of the more important groups. Material fee, \$8. (1964-65 and alternate years: fall—evening.)

* An interdisciplinary course offered by the departments of Botany and Zoology. Students may register in either department.

- 162 *Insect Physiology* (3) Munson
Lectures and laboratory work on the physiology of insects. Admission by permission of the instructor. Material fee, \$11 (1965-66 and alternate years; spring-evening.)
- 171-72 *Special Problems* (3-3) The Staff (Aca)
Written approval of the instructor is required. Material fee, \$11 a semester. (Academic year—as arranged.)
- 199-200 *Proseminar* (3-3) The Staff (Academic year)
Designed to correlate and supplement the work of Zoology majors.—day and evening.)

THIRD GROUP

- 201-2 *Seminar: Cytology** (3-3) (Academic year—evening.)
A study of the current literature in experimental cytology.
- 204 *Seminar in Invertebrate Zoology* (3) Mortensen (1964-65 and alternate years; spring-evening.)
A study of original publications on hormones of invertebrate animals.
- 214 *Advanced Invertebrate Zoology* (3) Mortensen
Lectures and laboratory work on problems in invertebrate physiology. Prerequisite: Zoology 101-2 or the equivalent. Material fee, \$8. (Not offered 1964-65.)
- 247-48 *Morphogenesis* (3-3) Hansen
Lectures and class reports on experimental morphology. Prerequisite: Zoology 104-4 or the equivalent. (1964-65 and alternate years—evening.)
- 251 *Seminar in Vertebrate Zoology* (3) Desmond (1965-66 and alternate years; fall—evening.)
A study of current publications in the field of histophysiology.
- 294-96 *Research* (Int.) The Staff (1964.)
Investigation of special problems. (Academic year—as arranged; summer 1964.)
- 299-300 *Thesis* (3-3) The Staff
(Academic year—as arranged; summer 1964.)

Courses From Other Departments

The following courses are of interest chiefly to the preprofessional student who expects to take his upper division work in one of the professional units of the University and to the student who seeks a two-year terminal degree (Associate in Arts or Associate in Science). Such professional credits do not normally count toward a Bachelor's degree from Columbian College of Arts and Sciences, but a student may, by prior permission, elect up to twelve hours of such work.

* All invertebrate courses are offered by the Department of Botany and Zoology. Students may elect from either Department.

Air Science

Commission in the United States Air Force Reserve—Upon being awarded a Bachelor's degree and upon the satisfactory completion of the Air Force ROTC course of instruction prescribed by law and regulations, the graduate will be appointed Second Lieutenant, United States Air Force Reserve.

BASIC COURSE

1-2 Leadership Laboratory—Freshman Year (1-1) The Staff
 Cadet basic airman training. Military courtesy, discipline, appearance and bearing; drill, flight speaking, and more formation drill; posture and command; the military mission and the problems of national security. Minimum 11 hours a semester. Laboratory fee, charged once a year, \$4. (May be substituted for Physical Education 1-2.) (Academic year—day.)

11-12 Leadership Laboratory—Sophomore Year (11-1) The Staff
 Cadet noncommissioned officer training. Military bearing and courtesy, all phases of drill and formation, command, order training and command personnel. Prerequisite: Air Science 1-2, 21-22 for men and Air Science 1-2 for women. Physical Science 1 or 9 is recommended as an elective during the sophomore year. Minimum 11 hours a semester. Laboratory fee, charged once a year, \$3. (May be substituted for Physical Education 11-12.) (Academic year—day.)

1 Foundations of Aerospace Power—Freshman Year (1) Carroll
 An introductory examination of the factors of aerospace power, major technological developments, requirements for military action in today's responsibilities of citizenship, development and tradition of the military profession, role and attributes of the professional soldier, American democracy, organization of the armed forces as factors in the preservation of national security, and the United States Air Force as a major factor in the security of the free world. (Fall, 2 hours a week—day.)

2 Air Science—Freshman Year (2 to 3)
 Any 2 or 3 semester hour introductory college courses in the areas of mathematics, natural and natural sciences, foreign languages, the humanities or social sciences approved by the Division of Air Science in meeting the precommission officer educational requirements. (Spring.)

3 Air Science—Sophomore Year (12 of 3) Adams
 Any 2 or 3 semester hour intermediate college courses in the areas of mathematics, natural and natural sciences, foreign languages, the humanities or social sciences approved by the Division of Air Science in meeting the precommission officer educational requirements. (Fall.)

4 World Military Systems—Sophomore Year (1) Adams
 A comparative study of world military forces in modern Post World War II and naval forces. Post World War II forces, Communist military systems and trends in the development and employment of military power. (Spring, 2 hours a week—day.)

ADVANCED COURSE

1-2 Air Science—Junior Year (1-1) Robert
 Air Force officer development. Knowledge and skills required of a junior officer in the Air Force. This includes the Air Force commander, his staff, and the air force, the military justice system and preparation for command training. Prerequisite: Air Science 1-2, 3 or 4. (Academic year—day.)

The Staff

103-4 Leadership Laboratory—Junior Year

(Credit is a part of Air Science 151-2)

Cadet noncommissioned officer and officer training. Wearing of the uniform, parades and ceremonies, communications and command voice. Cadets perform duties involving planning for and supervision of Cadet Corps activities. Emphasis placed on leadership and management proficiency. Maximum 15 hours a semester. (Academic year—day.)

The Staff

105 Summer Training Unit—Between Junior and Senior Years (required)

Attendance at a four-week Air Force ROTC summer training unit at an Air Force base within continental United States is mandatory. Program consists of familiarization flying, physical training, individual weapons, Air Force base activity and equipment, field exercises, air base problems, and leadership training.

Adams

151-52 Air Science—Senior Year (1-1)

First half: weather and navigation. A study of the weather and navigational aspects of airmanship, such as temperature, pressure, air masses, precipitation, weather charts, and dead reckoning navigation. **Second half:** the Air Force officer. A study of materials to help the cadet make a rapid effective adjustment to active duty as an officer of the United States Air Force. Prerequisite or concurrent registration: one 3 semester hour college course, each semester, approved by the Division of Air Science. Only pilot cadets need take weather and navigation. Others may substitute any college course approved by the Division of Air Science. (Academic year—day.)

The Staff

153-54 Leadership Laboratory—Senior Year

(Credit is a part of Air Science 151-52)

Cadet officer training. Cadet officers conduct activities of Corps of Cadets through chain of command, district subcommittees, plan and supervise Cadet Corps training and administration. Preparation for command and officer duties. Development of leadership and managerial responsibilities. Maximum 15 hours per semester. (Academic year—day.)

Government and Business

ACCOUNTING

Coughlan and Staff

1-2 Introductory Accounting (3-3)

First half: basic principles underlying accounting records, preparation of the work sheet and financial statements, accounting for single proprietorships and partnerships. **Second half:** accounting for corporations and introduction to cost accounting, analysis of financial statements, and valuation and amortization problems. Prerequisite to Accounting 2: Accounting 1 or permission of the instructor. (First half: fall and spring—day and evening; summer 1964. Second half: fall and spring—day and evening; summer 1964.)

Coughlan

101 Cost Accounting (3)

Theory and purpose of industrial cost accounting; treatment of systems of cost control and determination and analysis and interpretation of cost data; job, process, and standard cost systems. Prerequisite: Accounting 1-2. (Fall—day and evening; spring—day, summer 1964.)

- 11) *Financial Statement Analysis* (3) Kennedy, Steele
Methods and techniques of preparing, analyzing, and interpreting financial statements for the guidance of operating executives, directors, stockholders, and creditors; influence of price level changes on accounting data; deconsolidation and interpretation of income and ratios. Prerequisite: Accounting 1-2 or permission of the instructor. (Fall—day; spring—evening; summer 1964.)
- 12) 22 *Intermediate Accounting* (3-3) Gallagher, Simpson
First half: valuation and accounting problems of current assets, long-term investments, tangible fixed assets, intangible assets, and deferred charges; accounting for interest, noncurrent, contingent, and estimated liabilities. Prerequisite to 121; Accounting 2 or permission of the instructor. Second half: accounting for the organization, financing, operation, and dissolution of corporations and partnerships; basic principles of management and installment sales. Prerequisite to 122; Accounting 121 or permission of the instructor. (Audience: year—day and evening.)
- 13) *Income Tax Accounting* (3) Kurtz
Problems involved in the federal income taxation of individuals and corporations, differences between IRS accounting and financial accounting, social security taxes. Prerequisite: Accounting 1-2. (Fall—day and evening.)
- 14) *Auditing* (3) Kurtz
Rights and responsibilities of auditors; principles and procedures of making audits; techniques of verifying such financial statement items; preparation of audit working papers and reports. Prerequisite: Accounting 121-22. (Fall—evening; summer 1964.)
- 15) *Accounting Systems* (3) Lewis
Theory and procedure of designing and installing accounting systems for collecting, summarizing, analyzing, and presenting accounting data. Prerequisite: Accounting 161, 121-22, and 171, or permission of the instructor. (Fall—evening.)
- 16) *Advanced Accounting* (3) Coughlan, Kurtz
Consolidated statements, statement of affairs, revaluation and liquidating reports, and merger and trust accounting. Prerequisite: Accounting 121-22. (Fall—evening; summer 1964.)
- 17) *Business Budgeting* (3) Lewis
Policies, techniques, and procedures involved in the development, installation, and operation of a system of budgetary control to aid in the management of commercial and industrial organizations. Prerequisite: Accounting 1-2. (Fall—day; spring—evening; summer 1964.)

BUSINESS ADMINISTRATION

- 18) *Business Finance* (3) Page, Roman
Basic principles involved in the financing of business enterprises. Prerequisite: Accounting 1-2. (Fall—day; spring—day and evening; summer 1964.)
- 19) *Commercial Law: Contracts, Sales, Agency, and Bailments* (3) Collins, McClure
Fall—day and evening; summer 1964.)
- 20) *Commercial Law: Negotiable Instruments, Property, Mortgages* (3) Collins, Murphy
Spring—day and evening; summer 1964.)

Physical Education for Men

- 1-2 **Freshman Physical Education (1-1)** The Staff
Two periods of supervised activity a week. Physical Education fee,* \$4.50 a semester. (Academic year—day.)
- 11-12 **Sophomore Physical Education (1-1)** The Staff
Two periods of supervised activity a week. Physical Education fee,* \$4.50 a semester. (Academic year—day.)
- 41 **Personal Health (1)** Krupa
Physical, mental, and social health of the individual—understanding, significance, and promotion. Emphasis on personal health knowledge for the future teacher. (Spring—day.)
- 43-44 **Techniques of Physical Education Motor Activities (2-2)** DeAngelis and Staff
Fundamental skills, rules, and equipment. Physical Education fee,* \$4.50 a semester. (Academic year—day.)
- 45-46 **Teaching Individual and Dual Sports in Secondary Schools (2-2)** Hanken, Krupa
Tennis, golf, swimming, wrestling, basketball, bowling. Physical Education fee,* \$4.50 a semester. (Academic year—day.)
- 47 **Introduction to Physical Education (2)** Myers
An orientation course presenting the problems of physical education, vocational analysis, anatomy, kinesiology, and games of field. (Fall—day.)
- 48 **Human Anatomy (3)** Stallings
The structure of the human body. Basic course for physical education majors. Also open to health, nursing and science students in Physical Education. Prerequisite: Biology 1-2. (Fall—day.)
- 49 **Kinesiology (3)** Lawrence
A study of the anatomical mechanism of movement, analysis of the action of muscles in physical education activities. Prerequisite: an approved course in anatomy. (Spring—day.)

Physical Education for Women

- 1-2 **Freshman Physical Education (1-1)** The Staff
One period of supervised activity of health and physical education and two periods a week chosen from the program of supervised activity.
Fundamentals of health and physical education; study of the factors involved in personal improvement of health; observation of the body, and fundamentals of movement. Activities: basketball, football, field hockey, recreational games, etc.
Ballroom, modern dance, skating, swimming, synchronized swimming, tennis, etc.
- * The Physical Education fee is required for registration in one or more of the above courses.

11. *Insuring Physical Education* (10)* \$4.50 a semester. (Academic year—first semester)
 12. *Supplemental Physical Education* (1-1) The Staff
 no periods a week; classes from the activities offered each semester as listed under Physical Education 1-2. Physical Education (10)* \$4.50 a semester. (Academic year—second semester)
 13. *Techniques of Physical Education Motor Activities* (2 to 3-2 to 3) The Staff
 14. *Human Anatomy* (3) Stallings
 15. *Physiology* (3) Lawrence
 16. *Teaching Physical Education Activities* (2 to 3-2 to 3) The Staff
 17. *Physical Education* (10)* \$4.50 a semester. (Academic year—first semester)
 18. *Physical Education* (10)* \$4.50 a semester. (Academic year—second semester)
 19. *Physical Education* (10)* \$4.50 a semester. (Academic year—third semester)
 20. *Physical Education* (10)* \$4.50 a semester. (Academic year—fourth semester)

The University

HISTORY AND ORGANIZATION

The George Washington University had its beginning in 1821 as The Columbian College in the District of Columbia. The name of the institution was changed in 1873 to Columbian University and in 1904 to The George Washington University. The debt of the University to George Washington whose name it bears is an intangible one.

George Washington, as President and as private citizen, had urgently insisted upon the establishment of a National University in the Federal City. There he hoped that, while being instructed in the arts and sciences, students from all parts of the country would acquire the habits of good citizenship, throwing off local prejudices and gaining at first hand a knowledge of the practice, as well as the theory, of republican government. To further the materialization of his hopes, Washington left a bequest of fifty thousand of The Potomac Company "towards the endowment of a University to be established within the limits of the District of Columbia, under the auspices of the General Government, if that government should incline to extend a fostering hand towards it." The Congress never extended "a fostering hand". The Potomac Company passed out of existence, and Washington's bequest became worthless.

Fully conscious of Washington's hopes, but motivated primarily by a great missionary urge and the need for a learned clergy, a group of dedicated ministers and laymen sponsored a movement for the establishment of a college in the District of Columbia. Inspired largely by the zeal and energy of the Reverend Luther Rice, they raised funds for the purchase of a site and petitioned Congress for a charter. After much delay and amendment, Congress granted a charter which was approved by President Monroe on February 9, 1821. To safeguard the College's nonsectarian character it provided "That persons of every religious denomination shall be capable of being elected Trustees; nor shall any person, either as President, Professor, Tutor or pupil, be refused admittance into said College, or denied any of the privileges, immunities, or advantages therefore, for or on account of his sentiments in matters of religion."

During the entire time when the institution was known as Columbian College, its activities were centered on College Hill, a tract of forty-six and a half acres between the present Fourteenth and Fifteenth Streets extending north from Florida Avenue to somewhat beyond Columbia Road. The Medical School was located downtown. For the better part of the Columbian University period, the buildings of the University were situated along H Street between Thirteenth and Fifteenth Streets. The Medical School group still remains there.

During the last half century the University's present plan has been developed in that section of the old First Ward familiarly known as "Toggy Bottom," between

Nineteenth and Twenty-fourth Streets, south of Pennsylvania Avenue. Within a few blocks are the White House, the Department of the Interior, the State Department, the World Bank, and many other governmental offices and international agencies. The area is not without its reminders of historic interest to the University. President Monroe who signed the Charter lived at 2017 Eye Street. The first President of the Board of Trustees, the Reverend Obadiah B. Brown, was for fifty years the pastor of the church at Nineteenth and Eye Streets, and Washington selected Twenty-third and Eye Streets as the site of the National University he had hoped to see established.

The University as it is now organized consists of Columbian College of Arts and Sciences, which offers work leading to Associate's, Bachelor's, and Master's degrees; the Graduate Council, which offers work leading to the degree of Doctor of Philosophy; the professional schools, which include Medicine; Law; Engineering and Applied Science; Education; and Government, Business, and International Affairs; the College of General Studies; the Division of University Students; the Division of Air Science; and the Summer Sessions.

The George Washington University is privately endowed and is governed by a self-perpetuating Board of Trustees of which the president is an ex officio member.

ACADEMIC STATUS

The George Washington University is accredited by its regional accrediting agency, the Middle States Association of Colleges and Secondary Schools. This is important to students who wish to transfer credits from one institution to another. The University is on the approved list of the American Association of University Women and is a member of the College Entrance Examination Board. The Department of Chemistry is on the approved list of the American Chemical Society.

THE LIBRARY

The library collections of the University are housed in the University Library and the departmental libraries of law and medicine.

These collections contain approximately 304,000 volumes—294,000 in the University Library, 62,500 in the Law Library, and 27,500 in the Medical Library. Approximately 10,000 volumes a year are added to the Library's resources. Endowments, supplementing the University appropriation, provide books in the fields of American civilization, American literature, foreign service, history, public finance, and the social sciences; and gifts from many sources have enriched the collections. The Libraries currently receive 2,000 periodicals.

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* On sabbatical leave spring semester 1963-64

† On leave of absence 1963-64.

‡ On leave of absence spring semester 1963-64

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Bulletin



THE SCHOOL OF GOVERNMENT,
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July							January							July						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
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26	27	28	29	30	31	24	25	26	27	28	29	30	25	26	27	28	29	30	31
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August							February							August						
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September							March							September						
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13	14	15	16	17	18	19	14	15	16	17	18	19	20	12	13	14	15	16	17	18
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27	28	29	30	28	29	30	31	26	27	28	29	30
October							April							October						
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4	5	6	7	8	9	10	4	5	6	7	8	9	10	3	4	5	6	7	8	9
11	12	13	14	15	16	17	11	12	13	14	15	16	17	10	11	12	13	14	15	16
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November							May							November						
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15	16	17	18	19	20	21	9	10	11	12	13	14	15	14	15	16	17	18	19	20
22	23	24	25	26	27	28	16	17	18	19	20	21	22	21	22	23	24	25	26	27
29	30	23	24	25	26	27	28	29	28	29	30
.....	30	31
December							June							December						
.....	1	2	3	4	1	2	3	4	5	1	2	3	4
6	7	8	9	10	11	12	6	7	8	9	10	11	12	5	6	7	8	9	10	11
13	14	15	16	17	18	19	13	14	15	16	17	18	19	12	13	14	15	16	17	18
20	21	22	23	24	25	26	20	21	22	23	24	25	26	19	20	21	22	23	24	25
27	28	29	30	31	27	28	29	30	26	27	28	29	30	31

The Calendar 1964-65

FALL SEMESTER:

Orientation Assembly: all new students	Sept 11	Fri
Curriculum assemblies:		
New full-time students	Sept 11	Fri
New part-time students	Sept 14	Mon
Placement tests	Sept 14-15	Mon-Tues
Advising	Sept 14-15	Mon-Tues
Registration	Sept 17-19*	Thurs-Sat
Application for Feb graduation due in Registrar's Office		
Classes begin	Sept 21	Mon
Veteran's Day (holiday)	Nov 11	Wed
Thanksgiving recess	Nov 20-23	Thurs-Sat
Doctoral dissertations of Feb candidates due in Dean's Office	Dec 1	Tues
Graduate Record Examination	Dec 12	Sat
Christmas recess	Dec 23-Jan 2	Wed-Sat
Classes resume	Jan 4	Mon
Master's theses of Feb candidates due in Dean's Office	Jan 4	Mon
Last day of fall-semester classes	Jan 4	Mon
Examination period	Jan 13	Wed
Inauguration (holiday)	Jan 15-23	Fri-Sat
	Jan 20	Wed

SPRING SEMESTER:

Advising		
Registration	Jan 18-27	Mon-Wed
Application for June graduation due in Registrar's Office	Jan 21-30*	Thurs-Sat
Spring-semester classes begin	Feb 1	Mon
Subjects of Master's theses of June candidates due in Dean's Office	Feb 5	Fri
Winter Convocation (holiday)	Feb 22	Mon
Spring recess	March 22-27	Mon-Sat
Doctoral dissertations of June candidates due	April 1	Thurs

* Thursday and Friday, 12:00 to 8:00 P.M.; Saturday, 9:00 A.M. to 1:00 P.M.

Graduate Record Examination.....	April 10	Sat
Master's theses of June candidates due in Dean's Office	April 30	Fri
Last day of spring-semester classes.....	May 19	Wed
Examination period	May 24-29	Mon-Sat
Memorial day (holiday).....	May 31	Mon
Baccalaureate Service	June 6	Sun
Commencement	June 6	Sun

SUMMER SESSIONS*:

REGISTRATION FOR FALL SEMESTER 1965-66.....	Sept. 16-18	Thurs-Sat
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* Dates will be announced in the Calendar of the 1965 Summer Sessions Catalogue, published in December, 1964.

School of Government, Business, and International Affairs

INTRODUCTION

The School of Government, Business, and International Affairs was established in 1920 as the School of Comparative Jurisprudence and Diplomacy. In 1928 it was reorganized and broadened as the School of Government. During the next two decades the scope of the School broadened further with the addition of programs in business administration and public administration. In the same period the School gradually changed from primary emphasis on undergraduate study to emphasis on graduate work. In 1960 the name was changed to the School of Government, Business, and International Affairs.

The School offers undergraduate and graduate programs in various fields of Accounting, Business Administration, Business and Economic Statistics, International Affairs, and Public Affairs. Students in the freshman and sophomore years are registered in the lower division of Columbian College of Arts and Sciences, the liberal arts college of the University. Here they are assigned special advisors to assist them in choosing their programs. Graduate work only is offered in the fields of Economic Statistics, Health Care Administration, Personnel Administration, and Public Administration.

OBJECTIVES

The School of Government, Business, and International Affairs offers programs to prepare men and women for careers in the conduct of public and international affairs, as well as programs to equip students for eventual senior administrative responsibility in business and government. The development of mid-career programs for executives has become a further objective of national significance.

The School was reorganized in 1960 in recognition of the growing interdependence of business and government at both the national and international levels. The programs in Government and Business include examination of administrative principles and quantitative approaches to decision-making common to both business and government. These programs stress the points at which major policy decisions of business or government must give consideration to related policy decisions of the other. Emphasis is placed upon the fact that management education is not limited to organizational techniques, but is, in its broadest sense, education for management responsibility.

International Affairs is an area of higher education in which programs have been offered by the School of Government, the predecessor of the present School, since its inception. These programs, based on the fundamentals of economics, history, politics, and law, also give recognition to the international impact of American business activity.

Admission

The University accepts both men and women. Students are admitted at the beginning of each semester and summer session.

The right is reserved to refuse admission to any student with an academic record which creates doubt of his ability to succeed in college or who, for any other reason, would not be an acceptable student.

APPLICATION FOR ADMISSION OR READMISSION

Forms for application for admission or readmission are available at the Office of the Director of Admissions, 2029 G Street NW., Washington, D. C. 20006; telephone FE 2-0250, extension 3-14. The application for admission, with a \$15 application fee and a recent, signed photograph, should be returned to the Office of the Director of Admissions.

To insure consideration, the application, together with all required credentials, should be received by July 1 for the fall semester, January 1 for the spring semester, May 1 for the first summer session, or June 1 for the second summer session.

No application will be considered after September 1 for the fall semester, January 10 for the spring semester, June 1 for the first summer session, or July 1 for the second summer session.

An applicant who has attended one or more institutions of higher learning must request each registrar to mail directly to the Office of the Director of Admissions a transcript of his record, even though credits were not earned. If high school units are not shown on the college transcript, the applicant should request his high school to submit a transcript to the Office of the Director of Admissions.

ADVANCED STANDING

CREDIT FROM HIGHER INSTITUTIONS

Advanced standing may be granted for work successfully completed at accredited institutions of higher learning. Credit will be granted for transferred work only when it meets the requirements for the degree sought at this University. It may be allowed provisionally, and it may be withdrawn for subsequent poor work. Work of low pass grade (D or the equivalent) will not be considered for transfer.

The student must be in good standing as to scholarship and conduct. He must be eligible to return to the last previously attended institution in the semester for which he seeks admission to this University.

A limited amount of credit earned in service schools since 1941 may be considered for assignment to qualified degree candidates.

READMISSION

A student previously registered in the University who was not registered on-campus during the immediately preceding semester (summer session excluded), must apply for readmission in the Office of the Director of Admissions. If he applies as a degree candidate and was previously registered as a nondegree student, or if he has attended one or more higher institutions during his absence from the University, he must have complete, official transcripts sent to the Office of the Director of Admissions from each institution attended. Applications for readmission are considered on the basis of regulations currently effective.

ENTRANCE REQUIREMENTS

Good character and an academic background appropriate for the program of study contemplated are required.

FOR THE BACHELOR'S DEGREES

Bachelor of Arts in Government.—The satisfactory completion of the *International Affairs* or *Public Affairs* curriculum in the lower division of Columbian College of Arts and Sciences (see pages 26, 27), or the equivalent.

Bachelor of Business Administration.—The satisfactory completion of the *Accounting and Business Administration* or the *Business and Economic Sciences* curriculum in the lower division of Columbian College of Arts and Sciences (see pages 28 and 29, 30), or the equivalent.

FOR THE MASTER'S DEGREES

A Bachelor's degree from an accredited college or university is required. Students admitted to candidacy must have attained a quality-point index of 3.00 (B average) in the relevant undergraduate fields.

MASTER OF ARTS IN GOVERNMENT

In the field of Public Administration.—An undergraduate major in a social science or business administration, or equivalent work experience.

In the field of Public Affairs.—An undergraduate major in public affairs, economics, history, or political science, depending on the field of specialization.

In the field of International Affairs.—The applicant's undergraduate program should include background courses corresponding to an undergraduate major in international affairs at this University.

In the field of Economic Policy.—An undergraduate major in economics at this University, or the equivalent.

In the field of Business and Economic Sciences.—An undergraduate major in business and economic statistics, or the equivalent.

In the field of Personnel Administration.—An undergraduate major in a social science or education, with appropriate courses in psychology.

MASTER OF BUSINESS ADMINISTRATION

In the field of Accounting or Business Administration.—A Bachelor's degree from an accredited college or university.

In the program of automatic data processing appropriate courses in mathematics are required.

In the field of Health Care Administration.—A Bachelor's degree from an accredited college or university is required. In the selection of candidates consideration will be given to personal qualifications, aptitude for health care administration, and practical experience.

In the field of Personnel Administration.—An undergraduate major in a social science or education, with appropriate courses in psychology.

MASTER OF PUBLIC ADMINISTRATION

In the field of Public Administration.—A Bachelor's degree from an accredited college or university.

In the field of Personnel Administration.—An undergraduate major in a social science or education, with appropriate courses in psychology.

FOR THE DOCTOR'S DEGREES

Doctor of Business Administration.—The degree of Master of Business Administration, Master of Arts in an approved field, or the equivalent, together with acceptable personal qualities and a capacity for creative scholarship. Each applicant must demonstrate his competence by qualifying examination in statistics and accounting.

Doctor of Public Administration.—The degree of Master of Public Administration, Master of Arts in an approved field, or the equivalent, together with acceptable personal qualities and a capacity for creative scholarship. Each applicant must demonstrate his competence by qualifying examination in two tools of research, chosen as the program dictates.

Registration

A student cannot register for classes until he has received a letter of admission to the University, issued by the Office of the Director of Admissions.

A student previously registered in the University who was not registered on-campus during the immediately preceding semester (summer session excluded), must apply for readmission in the Office of Admissions.

No registration is accepted for less than a semester or one summer session. A student may not register concurrently in this University and another institution without the prior permission of the dean of the college, school, or division in which he is registered in this University. Registration in more than one college, school, or division of the University requires the written permission of the deans concerned.

Allowance of credit for work done concurrently at another institution will be at the discretion of the appropriate Dean's Council.

A student who is absent from the University for one semester or more is required to satisfy the curriculum requirements existing at the time of his return unless during his absence he maintains "in residence" status by paying the appropriate fee, page 12. For the purpose of this regulation, the summer term will be disregarded. The student who has completed his tuition requirements, but whose graduation is deferred for any reason, must maintain "in residence" status by paying the residence fee.

Registration is conducted in Building C, 2000 G Street NW., during the following periods: *fall semester*, September 11 and 12, from 12:00 to 1:00 P.M.; September 19, from 10:00 A.M. to 1:00 P.M. *Spring semester*, January 22 and 29, from 12:00 to 1:00 P.M.; January 30, from 10:00 A.M. to 1:00 P.M.

The following fees were adopted for the academic year 1963-64. They are subject to change.

For undergraduate and Master's study	\$550.00
For time program (12 to 18 hours) each semester	30.00
For time program or hours in excess of 18 for each semester hour	
For the degree of Doctor of Business Administration or Doctor of Public Administration	
For work leading to and including the General Examination	1,200.00
For work leading to and including the Final Examination	1,200.00
Additional Course Fee	

Additional Course Fees

In certain courses additional fees, such as laboratory and material fees are charged as indicated in the course descriptions. These fees are charged by the semester and, unless otherwise indicated, may be delayed in three payments when the tuition is paid in this manner. Rooming of apartments is charged against the cash value of the student. When housing is in excess of the normal amount provided for in the laboratory fee, the individual student will be required to pay such additional charges as are determined by the department concerned.

Special Fees

Any

Application fee (degree candidates only)	15.00
Application fee (non-degree candidates only)	12.00
For Thesis (when required)	4.00-17.00
For Master's Thesis	6.00
For Publishing Summary of Doctoral Dissertation	35.00
Publication fee	25.00
Publication fee for a Master's thesis	
Publication fee for a book	

Amount of Deposit	4.00
Amount of Interest	80.00
Amount of Principal	25.00
Amount of Total	109.00

Graduate Record Examination fee (to cover two examinations), charged each candidate for a Bachelor's degree at the time of registration for the final semester of study (excluding summer sessions).....	10.00
Late registration fee for failure to register within the designated period....	5.00
Change fee for each change of program, dropping or adding a course, changing from one method to another within a course, change of status (from student to credit status or vice versa), and change in credit hours for a course.....	2.00
Withdrawal fee, charged in special cases.....	5.00
Service fee, for late payment of tuition (see "Payment of Fees").....	2.00
Reinstatement fee, for readmission after formal suspension.....	5.00
Residence fee, to maintain "in residence" status during any semester of absence from the University or after completion of tuition requirements.....	36.00
Due and payable on the official days of registration.....	5.00
For each examination to qualify for advanced standing and for each special examination.....	5.00
English test for foreign students (when required).....	1.00
Transcript fee, for each transcript of record.....	

Registration in the University entitles each student to the following University privileges: (1) the services of the Placement Office; (2) the use of University library; (3) gymnasium privileges; (4) admission to all athletic contests, unless otherwise specified; (5) subscription to the *University Hatchet*, the student newspaper; (6) admission to University debates; (7) medical attention and hospital services as designated under Health Services. These privileges terminate and a student is no longer in residence when he withdraws or is dismissed from the University.

PAYMENT OF FEES

All fees are payable at the Office of the Cashier, 725 Twenty-first Street NW. No student is permitted to complete registration or to attend classes until all fees are paid. Fees for each semester are due and payable in advance at the time of registration.

The student may sign a contract at the time of each registration for semester charges, except for fees payable in advance, permitting payments as follows:

Fall Semester.—One third at the time of registration; one third on the first working day† in November; one third on the first working day† in December.

Spring Semester.—One third at the time of registration; one third on the first working day† in March; one third on the first working day† in April.

Arrangements for the above may be made with the Office of the Cashier at the time of registration. Installment due notices are mailed. However, nonreceipt of notice is no excuse for failure to meet obligations when due.

A student who fails to meet payments when due, but pays his fees within the following two weeks of the date on which payment is due, is charged a \$2 service fee. A student who fails to meet payments within these two weeks after payment is due is automatically suspended and may not attend classes until he has been officially reinstated and has paid all accrued fees and a reinstatement fee of \$5.

* Payment of the residence fee entitles the student who is absent from the University for a period of two weeks or more to return to the University without the payment of a reinstatement fee. The residence fee is not refundable. The residence fee is not refundable if the student is absent from the University for a period of two weeks or more.

† The University work week is Monday through Friday, inclusive.

A student suspended for failure to meet payments when due may not be reinstated for the semester after two weeks from the date of suspension. Applications for reinstatement are to be made to the Office of the Cashier.

An auditor pays all fees chargeable to the student registered for credit except the registration fee.

WITHDRAWALS AND REFUNDS

Applications for withdrawal from the University or for change in class schedule must be made in person or in writing to the dean of the college, school, or division in which the student is registered. Notification to an instructor is not an acceptable notice (see "Withdrawal", page 19).

In authorized withdrawals and changes in schedule, financial adjustments will be made as follows:

FALL SEMESTER

Full-time program.—Complete withdrawal from the University dated on or before the last working day* in October or November, cancellation of two-thirds or one-third, respectively, of the full-time program charges.

Partial withdrawal dated on or before the last working day* in October or November, cancellation of two-thirds or one-third, respectively, of the difference between the charges for the full-time program and the hourly charges of the part-time program continuing in effect.

Part-time program.—Withdrawal dated on or before the last working day* in October or November, cancellation of two-thirds or one-third, respectively, of tuition charges.

SPRING SEMESTER

Full-time program.—Complete withdrawal from the University dated on or before the last working day* in February or March, cancellation of two-thirds or one-third, respectively, of the full-time program charges.

Partial withdrawal dated on or before the last working day* in February or March, cancellation of two-thirds or one-third, respectively, of the difference between the charges for the full-time program and the hourly charges of the part-time program continuing in effect.

Part-time program.—Withdrawal dated on or before the last working day* in February or March, cancellation of two-thirds or one-third, respectively, of tuition charges.

No refund or reduction will be allowed on any withdrawal dated after the last working day* in November (fall semester) or March (spring semester).

A student enrolled in a full-time program, who drops or quits a course and continues to be in a full-time program, will have no financial adjustments of tuition other than those involving course fees.

In no case will a refund be made of the first third of the total tuition charges. In no case will tuition be reduced or refunded because of absence from classes.

* The University work week is Monday through Friday, inclusive.

Payment applies only to the semester for which a registration charge is incurred and in no case will this payment be credited to another semester.

Students enrolled in the ROTC who fail to turn in uniforms, equipment, and text books, on separation from the Corps, are charged the value of the missing items.

Authorization to withdraw and certification for work done will not be given a student who has not a clear financial record.

Students are encouraged to provide their own cash funds until they can make banking arrangements in the community.

Because many parents may wish some option in meeting and financing all or part of the cost of a college education, the University offers educational loan plans through the Girard Trust Corn Exchange Bank in Philadelphia, Pennsylvania; Funds for Education, Inc., Manchester, New Hampshire; and The Riggs National Bank, Washington, D. C.

Although similar in purpose, these plans vary somewhat in coverage and conditions. One-year and multiple-year plans are available. Insurance covering the life and health of the sponsor is provided through these plans.

Individuals over twenty-one years of age who are employed full-time are also eligible to apply. They may sponsor their own contracts, provided they meet the conditions specified by the plan for which they are applying.

Brochures and applications describing both of these plans are available in the Office of the Vice President and Treasurer.

Fellowships, Scholarships, Prizes, Financial Aid

FELLOWSHIPS, GRADUATE SCHOLARSHIPS, AND ASSISTANTSHIPS

The following fellowships, graduate scholarships, and assistantships are available. Unless otherwise specified a letter of application should be submitted not later than March 1 preceding the period for which the award is to be made. They should be directed to the chairman of the department or the Dean of the School and addressed to The George Washington University, Washington, D. C. 20006.

University Teaching Fellowships. Assigned for the academic year to the various departments of instruction. The applicant is expected to be a prospective candidate for a Doctoral degree in the general field of his future doctoral study. Each teaching fellow receives an annual stipend (on a nine-month basis) of up to \$2,000 plus tuition and laboratory fees for whatever schedule of study or research his fellowship stipend permits him to carry. Tuition and laboratory fees may not exceed \$600. Salaries vary with the work load of the full-time teaching fellow. Normally a University teaching fellow renders half-time service in classroom or laboratory assignments to the department of instruction directing his doctoral study. Application should be made to the chairman of the department of instruction concerned.

Graduate Teaching Assistantships.—Open in various departments of instruction to candidates for the Master's degree. Each graduate teaching assistant renders a designated unit of service to his major department of instruction, and receives, depending upon his teaching or laboratory assignment, up to \$2,000 on a nine-month basis plus tuition and laboratory fees for the program of studies which the duties of his assistantship permit him to carry. Tuition and laboratory fees may not exceed \$730. Application should be made to the chairman of the department of instruction concerned.

Graduate Teaching Fellowships in Behavioral Science.—For information concerning these fellowships, consult the Center for the Behavioral Sciences.

American Security and Trust Company Fellowship (1961).—A two-year fellowship of \$2,000 a year is available to a graduate student in business administration or economics in the School of Government, Business, and International Affairs.

Waford Scott Blaney Fellowship in International Affairs (1961).—Bequest of Jeanette Blaney Strayer in memory of her father. The income from this fund, up to \$2,000, is used to provide fellowships for graduate students in a field of international relations, in the School of Government, Business, and International Affairs.

Scottish Rite Fellowships.—The Ancient and Accepted Scottish Rite of Freemasonry, Southern Jurisdiction, U.S.A., offers fellowships each in the amount of \$2,000 to graduates of accredited colleges who wish to enroll in the School of Government, Business, and International Affairs, to train for government leadership—state, or local. The territory includes the Orisents of Alabama, Alaska, Arizona, Arkansas, California, Colorado, District of Columbia, Florida, Georgia, Hawaii, Idaho, Iowa, Kansas, Kentucky, Louisiana, Maryland, Minnesota, Mississippi, Missouri, Montana, Nebraska, Nevada, New Mexico, North Carolina, North Dakota, Oklahoma, Oregon, South Carolina, South Dakota, Tennessee, Texas, Utah, Virginia, Washington, West Virginia, Wyoming, Panama, Puerto Rico, and the Bodies of Israel, Japan, Okinawa, and Guam.

These fellowships are made possible by annual gifts and are available to residents of the respective states or countries, and application therefore should be made to the Southern Grand Inspector General of the Supreme Council, 22nd, of the Southern Jurisdiction, U.S.A., of the Orient state or country from which the application is to be made. Direct inquiries to Mr. C. M. Farrington, The George Washington University.

Wolcott Foundation Scholarships.—Sponsored by the Wolcott Foundation of High Twelve International and available to graduates of accredited colleges who wish to enroll in the School of Government, Business, and International Affairs for graduate work in International Affairs, Public Administration, Personnel Administration, or Business Administration. Preference is given to students who themselves are affiliated with, or whose parents are affiliated with, High Twelve International or the Master Order. The fellowships cover tuition for one calendar year of graduate study in residence. Where need is shown, a living allowance up to \$100 a month may be granted. Direct inquiries to Mr. C. M. Farrington, The George Washington University.

SCHOLARSHIPS AND PRIZES

The following scholarships and prizes are limited to students in the School of Government, Business, and International Affairs. The University offers many others.

which are open to students in this School. A special bulletin containing a complete list and full information may be obtained from the Chairman of the Committee on Scholarships, The George Washington University, Washington, D. C. 20006.

Scholarships are awarded for the academic year unless otherwise specified and are credited in equal parts for each semester. Each holder must carry a full schedule of academic work during the period for which the scholarship is awarded.

A letter of application should be submitted on or before April first for the following academic year and, unless otherwise specified, should be addressed to the Chairman of the Committee on Scholarships, The George Washington University, Washington, D. C. 20006. Awards are made during the month of April. All scholarships begin with the fall semester.

American Society of Women Accountants Scholarship (1953).—Established by the District of Columbia Chapter to provide a partial scholarship for a worthy sophomore, junior, senior, or graduate woman majoring in accounting.

Lula M. Shepard Scholarships (1946).—By bequest, two partial scholarships for "worthy Protestant students" wishing to enroll in the International Affairs program of the School of Government, Business, and International Affairs.

Alpha Kappa Psi Prize.—A key, awarded annually by Beta Mu Chapter to the male student who has completed 90 semester hours at this University and attained the highest average grade in economics, business administration, public accounting, public finance, and foreign commerce. The name of the winner and the year of the award is engraved on a plaque in the Office of the Dean of the School of Government, Business, and International Affairs.

Wilbur J. Carr Prize.—This prize of \$200 was established in 1962 by Edith K. Carr, an Honorary Trustee of the University, in memory of her distinguished husband, who was graduated from the School of Comparative Jurisprudence and Diplomacy in 1929. It will be awarded annually to that man in the graduating class of The George Washington University who has demonstrated outstanding ability in his study of international affairs and who has given evidence of possessing in marked degree the qualities which produce the good citizen and the dedicated public servant.

Ernest Connelloy Memorial Award.—Awarded by the Washington Personnel Association to an outstanding graduating senior in business administration who shows general excellence in studies, demonstrates superiority in one or more courses in personnel administration, and shows qualities of leadership or promise through extra-scholastic activities.

John Henry Cowles Prizes.—A first prize of \$100 and a second prize of \$75, established by John H. Cowles, Grand Commander of the Supreme Council of Thirtieth Degree (Mother Council of the World) of the Ancient and Accepted Scottish Rite of Freemasonry, Southern Jurisdiction of the United States of America. Awarded annually to the two seniors in the School of Government, Business, and International Affairs with the highest academic averages.

Morgan Richardson Goddard.—A memorial established by Mary Williamson Goddard, Alice Douglas Goddard, and Frederick Joseph Goddard, of Georgetown, D. C. Awarded to the junior or senior student making the highest average in the following fields: economics, business administration, foreign commerce, and public accounting.

FINANCIAL AID

STUDENT EMPLOYMENT

Graduate and undergraduate student assistantships are available in several departments of the University. Application should be made to the chairman of the department of instruction concerned.

The Placement Office maintains a registry of positions available in many fields of work and refers qualified applicants for consideration.

LOAN FUNDS

The following loan funds are available to students in the University in accordance with the qualifications placed thereon by the donors. Inquiries should be directed to the Office of the Treasurer.

University Loan Fund.—The Trustees of the University have made available a fund for short-term loans to students to provide for partial payment of tuition. Application should be made three days prior to the dates on which tuition installments are due.

Edging Foundation Hospital Administration Loan Fund.—A fund of \$10,000 for loans to full-time graduate students in hospital administration.

National Defense Student Loan Fund.—This fund is available to full-time undergraduate and graduate students who are in need of financial assistance. Priority is given to applicants who express a wish to teach in elementary or secondary schools, and whose academic background indicates a superior capacity or preparation in science, mathematics, engineering, or a modern foreign language. After application for admission to the University has been completed, application on forms prescribed for this fund must be filed in the Office of the Vice President and Treasurer no later than (1) for the fall semester—June first for students currently registered in the University and July first for entering students; (2) for the spring semester—November fifteenth; (3) for the Summer Session—May first.

For information concerning full- and part-time employment, see "The Placement Office", pages 32-33.

Regulations

A student who withdraws or is suspended, or is otherwise absent from the University for one semester or more, may re-enter and continue his work only under the regulations in force at the time of his return. (See "In Residence Regulations", page 11.)

If a student knowingly makes a false statement or furnishes material information in an application for admission, registration card, or any other University document, his registration may be canceled and he will be ineligible (except by special permission of the Faculty) for subsequent registration in any unit of the University.

ATTENDANCE

A student may not attend classes until registration is completed and fees due are paid. A student may be dropped from any course for undue absence.

The student is held responsible for all the work of the courses in which he is registered, and all absences must be excused by the instructor in charge before provision is made for him to make up the work missed.

A student suspended for any cause may not attend classes during the period of suspension.

INDEPENDENT STUDY PLAN

A student of *demonstrated capacity*, with a special interest in the subject matter of a course, may be permitted to undertake study under the personal direction of an instructor, in accordance with the rules of the appropriate department. Credit under this plan is limited to the specific course credits normally allowed when taken on a class basis.

SCHOLARSHIP

A student who fails to maintain the scholarship requirements of the School of Government, Business, and International Affairs may be dismissed from the University.

GRADES

Grades are mailed to the student through the Office of the Registrar at the close of each semester. They are not given out by instructors. For details of grading system see pages 22-23 and 36.

EXAMINATIONS

Examinations are scheduled at the end of each semester or at the completion of the course.

ACADEMIC DISHONESTY

Evidence of dishonesty on the part of any student will result in his suspension by the Dean upon recommendation of the appropriate Dean's Council.

A student found guilty of dishonesty will be suspended for a stated period and will be deprived of credit for all courses in which he is enrolled during the semester in which the dishonest act occurs. A disciplinary grade of "Failure—Academic Dishonesty" will be recorded for each such course, and this grade will be employed in computation of the quality-point index.

If a student suspended because of Academic Dishonesty should be readmitted, he may be required to repeat for grade all courses for which a disciplinary grade has been recorded, and both the grade earned on repetition and the disciplinary "Failure—Academic Dishonesty" grade will be employed in computation of the quality-point index.

WITHDRAWAL

Withdrawal from a course or from the University requires the permission of the Dean. Permission to withdraw from the University will not be granted a student who does not have a clear financial record. (See "Tees and Financial Regulations", pages 13 and 14.)

Withdrawal between the last working day* in October and the end of the fall semester and between the last working day* in February and the end of the spring semester is permitted only in exceptional cases.

All charges for courses dropped without the approval of the Dean must be met by the student. Reporting the dropping of a course to an instructor does not effect its discontinuance.

A student may not withdraw from either the basic course or the advanced course of the Air Force ROTC without the approval of the President of the University.

CHANGES IN PROGRAM OF STUDIES

Changes within a College, School, or Division.—A student may not change or drop courses (see "Withdrawal", above) or change his status to that of auditor except with the approval of the Dean.

Change from one section to another of the same course may be made with the approval of the Dean and the department concerned.

Change from one major subject to another within the same college or school may be made with the approval of the Dean. All requirements of the course of study to which the change is made must be met.

Transfer within the University.—Transfer from one college, school, or division to another may be made only with the approval of the deans concerned. Except in cases of normal progression from the lower division of Columbian College in a regular baccalaureate program, application for transfer must be made to the Director of Admissions on the form provided by his office.

Students wishing to transfer from the Division of University Students to a degree-seeking college or school of the University should understand that consideration will be given only to courses approved as applicable toward the degree sought and that a minimum of 45 semester hours will be accepted in transfer.

Students transferring within the University should note that 30 semester hours, including at least 12 semester hours in the major field, must be completed in residence at the school or college from which the degree is sought. Upon transfer the student should consult the deans concerned and understand clearly the requirements to be met.

CREDIT

Credit is given only after registration for a course and satisfactory completion of required work, or upon the assignment of advanced standing.

At request the Registrar will issue to undergraduate degree candidates a balance sheet showing the amount of work completed and the requirements remaining to be met for the degree.

In special instances, a person who has been admitted to the University may be registered with the permission of the instructor, at his "auditor" in a class (no academic credit).

*The University work week is Monday through Friday inclusive.

credit). An auditor is not required to take active part in the exercises or to take examinations. A student who takes a course as an auditor may not take the same course later for credit.

TRANSCRIPTS OF RECORD

Official transcripts of student records will be issued on request of the student or former student. A fee of one dollar is charged for each transcript. No certificate of work done will be issued for a person who does not have a clear financial record.

GRADUATION REQUIREMENTS

To be recommended by the Faculty for graduation a student must have met the admission requirements, completed satisfactorily the scholarship, curriculum, residence, and other requirements for the degree for which he is registered, and be free from all indebtedness to the University.

Application for Graduation.—Application for a degree or certificate must be filed in the Office of the Registrar at the time of registration for the last semester or summer session of the senior or final year.

Students expecting to complete requirements for degrees during the summer session must apply for graduation as a part of registration for the summer session.

In Residence Status.—A student who is absent from the University for one semester or more is required to satisfy the curriculum requirements existing at the time of his return, unless during his absence he maintains "in residence" status by paying the residence fee, see page 12.

The student who has completed tuition requirements, but whose graduation is deferred for any reason must maintain "in residence" status by paying the residence fee.

Graduate Record Examination.—All candidates for Bachelor's degrees are required to take two parts of the Graduate Record Examination (see pages 24-25).

Attendance and Conduct.—The University reserves the right to refuse to confer a degree upon a candidate whose attendance or conduct has been unsatisfactory.

Thesis or Dissertation.—A thesis or dissertation submitted in partial satisfaction of requirements for a degree, must be presented in its final form to the Dean no later than the date specified in the University calendar. Three complete copies of each are required. It is the responsibility of the candidate for a graduate degree to obtain from the Dean a printed copy of the regulations governing the styling and reproduction of theses and dissertations, which are rigidly enforced.

Accepted theses or dissertations, with accompanying drawings, become the property of the University and are deposited in the University Library, where the duplicate copies are bound and made available for circulation. Permission to publish or adapt material in them must be secured from the Dean.

Graduation in Absentia.—Application for graduation in *absentia* must be submitted to the Dean.

THE LIBRARY

A student registered in the University is entitled to the reference use of the University Library. The Student Identification Card, issued upon the payment of fees, must be presented as identification.

The hours of the University Library and the Law Library are Monday through Friday, 9:00 A.M. to 10:00 P.M.; Saturday, 9:00 A.M. to 5:00 P.M.; Sunday, 2:00 to 5:00 P.M. The Medical Library is open Monday through Friday, 9:00 A.M. to 10:00 P.M.; Saturday, 9:00 A.M. to 5:00 P.M.

The loan period for most books available for home circulation is two weeks, with an additional two week renewal. A fine of five cents will be charged for each day that a book is overdue. Any book which does circulate is subject to recall by the Library at any time. Reserve books for collateral reading must be used in the reading room when the Library is open. With special permission they may be drawn for personal use when the Library closes. A fine of twenty-five cents will be charged for the first hour or fraction of an hour and five cents for each hour or fraction thereafter that a reserve book is overdue. Grades of a student will be withheld until library record is clear.

The student has access to the Library of Congress, the Public Library of the District of Columbia and its branches, the Library of the Pan American Union, the Library of the Bureau of Railway Economics, the Library of the United States Department of Agriculture, the Library of the United States Office of Education, the National Library of Medicine, the Library of the Smithsonian Institution, and many of the great special collections of the government departments.

RIGHT TO DISMISS STUDENTS

The right is reserved by the University to dismiss or exclude any student from the University, or from any class or classes, whenever, in the interest of the student or the University, the University Administration deems it advisable to do so.

RIGHT TO CHANGE RULES

The University and its various colleges, schools, and divisions reserve the right to change or discontinue requirements, rules, and fees. Such regulations shall go into force whenever the proper authorities may determine.

PROPERTY RESPONSIBILITY

The University is not responsible for the loss of personal property in any University building. A "Lost and Found" office is maintained in the Student Union.

CLASSIFICATION OF STUDENTS

A *first-year student* is a student who has completed between 64 and 94 hours and filed the program of his next, approved by his adviser, in the Office of the Dean.

A *second-year student* is a student who has completed between 94 and 124 hours, including at least one of second-group work in his next.

A *third-year student* is a student who has satisfactorily completed the work for the third-year degree and filed his approved program of study in the Office of the Dean.

A *fourth-year student* is a student who has been admitted by the Committee on Graduate Studies in Business Administration and Public Administration.

A *graduate student* is a student not immediately eligible for an equalized degree candidate who is admitted to the School of Government, Business, and International Affairs for graduate ability in a prescribed program or to make up deficiencies.

The Bachelor's Degrees

The School offers programs leading to (1) the degree of Bachelor of Arts in Government with majors in International Affairs or Public Affairs and (2) the degree of Bachelor of Business Administration with majors in Accounting, Business Administration, and Business and Economic Statistics.

THE REQUIREMENTS FOR THE DEGREES

AMOUNT OF WORK

A full-time student not on probation may not ordinarily take more than 15 semester hours. A student employed more than 24 hours a week, who is not on probation, may not take more than 9 semester hours.

A full-time student whose quality point index is 3.50 or higher may take not more than 18 semester hours. A student employed more than 24 hours a week, whose index is 3.50 or higher, may take up to 12 semester hours.

A student who accepts employment after registration or at any time during a semester must report immediately to the Dean, so that his program may be adjusted if necessary.

Exception to these rules will require the approval of the Dean.

SCHOLARSHIP

In order to graduate, a student must have the following: (1) a general quality point index of at least 2.00 and (2) an index in his major of at least 2.50. The major includes the required courses and courses taken in the group options.

GRADES

The following grading system is used: *A*, excellent; *B*, good; *C*, average; *D*, passing; *F*, failing. *CR* indicates credit. Whenever a grade has not been assigned the symbol *I* (incomplete) or the symbol *W* (authorized withdrawal) will be recorded. The symbol *I* indicates that a satisfactory explanation has been given the instructor for the student's failure to complete the required work of the course. An "incomplete" cannot be made up after the lapse of one calendar year except by written permission of the dean's council of the college, school, or division concerned. An "incomplete" which is not removed within one calendar year is automatically changed to an *F*. An incomplete cannot be removed by re-taking the course. A student may not repeat for grade a course in which he has received a grade of *D* or above, unless required to do so by the department concerned. A written statement to this effect must be submitted to the Registrar by the appropriate departmental chairman.

THE QUALITY-POINT INDEX

Scholarship is computed in terms of the quality point index, obtained by dividing the number of quality points by the number of semester hours for which the student has registered, both based on the complete record in this University.

Quality points are computed from grades as follows: *A*, four points; *B*, three points; *C*, two points; *D*, one point; *F*, no points, for each semester hour for which the student has registered. Courses marked *W* or *I* are not considered in determining the index, except that courses marked *I* will be considered when a formal grade is recorded. An "incomplete" which is not removed within one calendar year is automatically changed to an *F*. Grades in courses taken at another institution are not considered in computing the quality-point index.

HONORS

Dean's Honor List.—The names of students who achieve a quality-point index of 3.50 or higher are placed on the Dean's Honor List for that semester. Appearance on the List will be limited to (1) full-time students registered for a minimum of 12 semester hours and (2) part-time students registered for a minimum of 12 semester hours over a period of two consecutive semesters, which may include the summer term.

With distinction.—A Bachelor's degree may be conferred "with distinction", at the discretion of the Faculty, if a student attains a quality-point index of 3.50 or higher on all work taken at this institution. To be eligible for this honor a student must have completed at this institution at least one-half of the work required for the degree.

Special honors.—Special honors may be awarded by the Faculty to the recipient of a Bachelor's degree for outstanding achievement in the major field of work on recommendation of the major department, under the following regulations:

1 The student must have his candidacy for special honors approved by the faculty member representing the major department on field not later than the beginning of the senior year.

2 The student must meet such other conditions as may be set at the time his candidacy is approved.

3 No student will be awarded special honors unless he has a quality-point index of at least 3.00 on all work taken at this institution.

4 To be eligible for honors a student must have completed at this institution at least one-half of the work required for the degree.

Military honors.—An Air Force ROTC cadet may be designated a "Distinguished Air Force ROTC Cadet" if he (1) has completed Air Science 101 and 102 with an average standing among the upper third of the students enrolled therein; (2) has an accumulative academic average of *B* or better; (3) possesses high moral character and aptitude for service in the Air Force; (4) has distinguished himself by demonstrated leadership through participation in recognized extracurricular activities while in attendance at an Air Force ROTC Summer Training Unit. A "Distinguished Air Force ROTC Cadet" is authorized to wear a "Distinguished Cadet" pin above the right breast pocket of the uniform. He may submit an application upon his designation as a "Distinguished Air Force ROTC Graduate."

An Air Force ROTC cadet may be designated a "Distinguished Air Force ROTC Graduate" if he has (1) been designated a "Distinguished Air Force ROTC Cadet" and maintained the standards required of a "Distinguished Air Force ROTC Cadet" during the period between designation and graduation; (2) completed the Air Force ROTC Advanced Course; and (3) completed the requirements for a Bachelor's de-

gree. A "Distinguished Air Force ROTC Graduate" will be presented with a certificate signed by the Commandant, Air Force ROTC, and, if he made application, will be considered for a regular commission in the United States Air Force.

PROBATION

A student whose quality-point index falls below 2.00 after completing a minimum of 12 semester hours of study, will be placed on probation. This probation extends over the period in which the student attempts 12 semester hours of work which may include remedial studies as prescribed.

SUSPENSION

A student whose quality-point index is 1.50 or below or whose index remains below 2.00 at the end of his probationary period may be suspended. A student suspended for poor scholarship may apply for readmission after an interval of one calendar year. To be considered for readmission, he must pass prescribed tests and submit evidence to the appropriate Dean's Council that during his absence from the University he has so conducted himself as to indicate that he will profit by readmission. A student readmitted after suspension is on probation and must maintain a current quality-point index of at least 2.50 on each 12 semester hours of work undertaken until his cumulative index is 2.00. In no case will the probationary period after readmission exceed 24 hours of study. A student suspended twice for poor scholarship will not be readmitted.

RESIDENCE

A minimum of 30 semester hours, including at least 12 hours in the major field, must be completed in residence in the School of Government, Business, and International Affairs. This requirement applies to students transferring within the University as well as to students transferring from other institutions. Summer work may be counted in residence, but in no case may the period of residence aggregate less than thirty weeks. Unless special permission is granted by the Dean to pursue work elsewhere, the work of the senior or final year must be completed in residence.

GRADUATE RECORD EXAMINATION

All candidates for Bachelor's degrees are required to take two parts of the Graduate Record Examination in the University's institutional testing program. The examinations are conducted by the University twice a year: the Fall Testing Session for seniors graduating in February, and the Spring Session for those graduating in June. Students expecting to complete degree requirements during the summer sessions should take the examination in the Spring Session.

By special permission seniors who expect to graduate in June may take the Graduate Record Examination at the previous Fall Testing Session, so as to have transcripts available early in the year when applying for admission to graduate schools. Dates of the examinations are announced in the Calendar.

Each senior required to take the Graduate Record Examination must register for it in the office of the Dean when he registers for his final regular semester of study.

ing summer sessions). A \$10 examination fee is payable at the time of registration.

Students will receive individual reports of test scores and may avail themselves of regular transcript services of the Educational Testing Service.

USE OF CORRECT ENGLISH

A student whose written or spoken English in any course is unsatisfactory may be referred by the instructor to the Dean. The Dean may assign supplementary work without academic credit, varying in amount with the needs of the student. If a book prescribed is equivalent to a course, the regular tuition fee is charged. The granting of a degree may be delayed for failure to make up any such deficiency in English to the satisfaction of the Dean.

SUMMER SCHOOL CREDIT

A student who plans to attend summer school sessions at another institution with a notation of having credits so obtained apply toward graduation from this University must first secure the written approval of the Dean. In no event will such credit be recognized to an amount in excess of that which might be earned in a normal period in this institution.

STUDY ABROAD

Study abroad during the junior year is encouraged. Students wishing to study abroad must consult with their advisors and the Dean, because individual arrangements are made in each case.

CORRESPONDENCE AND HOME-STUDY COURSES

Study for correspondence or home-study courses is not acceptable and cannot be counted toward a degree.

CURRICULUM REQUIREMENTS

To be recommended by the Faculty for graduation, candidates are required to complete in addition to the appropriate freshman and sophomore work, a minimum of semester hours during the junior and senior years, as set forth in one of the following curricula.

EXAMINATIONS FOR WAIVING CURRICULUM REQUIREMENTS

A required course may be waived by the satisfactory passing of a waiver examination authorized and prescribed by the department or curriculum adviser concerned. Passing this examination does not entitle the student to any hours of credit toward a degree. Request to take the examination should be made to the curriculum adviser and the required fee paid at the office of the Cashier before the date set for examination.

Bachelor of Arts in Government

INTERNATIONAL AFFAIRS

PREREQUISITE—FRESHMAN AND SOPHOMORE YEARS

The following two-year curriculum offered in the lower division of Columbia College of Arts and Sciences is required for admission to the School of Government, Business, and International Affairs in candidacy for the degree of Bachelor of Arts in Government with a major in International Affairs. Freshman and sophomore students are subject to the regulations of Columbia College of Arts and Sciences. Students are encouraged to apply for advanced placement or waiver examinations in English and History.

	Semester Hours
English Composition ..English 1 or 1X, 2	6
English Literature ..English 51-52, 71, 72	12
Foreign Language ..	3
Geography ..Geography 52	3
Mathematics or Science*	6-8
Physical Education ..	4
Social Studies ..	15
Elective† ..	6
	64
Total.....	

REQUIRED—JUNIOR AND SENIOR YEARS

The International Affairs program covers international political relations, international trade and finance, international communications, and regional studies. Its purpose is to equip students, by providing general background and specialized work, for careers in the field of American foreign relations. The diplomatic service of the United States, the several agencies of government with responsibilities in the international field, the international organizations, and American enterprise abroad offer opportunities in this field.

	Semester Hours
Econ 181-82 ..International Economics	6
Hist 181-82 ..Diplomatic History of the United States	6
Pol Sc 171 ..International Politics	3
Pol Sc 181-82 ..European Diplomatic History since 1871	6
Pol Sc 181-82 ..Survey of Public International Law and Organization (Formerly International Law)	6
Pol Sc 197 ..Proseminar in International Affairs: Strategies of Contemporary American Foreign Policy	3
Foreign Language ..Composition and Conversation	6
Geography ..	3
Group Option ..(To be selected from one of the following groups in consultation with a tutor)	15
Elective ..	12
	60
Total.....	

* This requirement may be satisfied by 6 hours of Mathematics, by 3 hours of Mathematics plus Statistics 21, or by 6 to 8 hours of science.
† Credit is not given for courses elected in Physical Education or Secretarial Studies.

Group I—International Politics: Composed of courses in political science, history, and geography concerned with the study of American diplomatic relations.

Group IV—**International Communications:** Composed of courses in political science, sociology, psychology and anthropology, and journalism concerned with the study of international information programs, public opinion, psychological warfare, cultural relations, and public relations. It is recommended that the student include statistics in his Freshman and sophomore year programs.

Group IV—Area or Regional Studies: Composed of courses in economics, history, political science, and geography. Integrated programs of study are available in the following areas or areas: Europe, Africa and the Middle East; Asia and the Pacific Area; the Caribbean; and Latin America. Modifications and combinations of these areas may be approved by the advisory. The foreign language requirement should be met by a course suitable for study of the region or area selected.

PUBLIC AFFAIRS

PREREQUISITE—FRESHMAN AND SOPHOMORE YEARS

PREREQUISITE—FRESHMAN AND SOPHOMORE YEARS

The following two-year curriculum offered in the lower division of Columbian College of Arts and Sciences is required for admission to the School of Government, Politics, and International Affairs in candidacy for the degree of Bachelor of Arts in Government with a major in Public Affairs. Freshman and sophomore students subject to the regulations of the Columbian College of Arts and Sciences. Students are encouraged to apply for advanced placement or waiver examinations in Government and History.

	English 1 or IV, V	Other
Language		6
Mathematics, Science	History 1-2; Chemistry 3-4; Geology 1-2; Mathematics 4-6; Physics 1-2 or General II, III or Statistics III, 22	12
Education	Students exempt from the general education requirements will be required to complete 4 hours of education	6-8
Social Studies	Language 1-6; History 6-10; Political Science 9-10	4
Foreign	(To satisfy minimum required credits)	3
Total		19-22

REQUIRED—JUNIOR AND SENIOR YEARS

REQUIRED—JUNIOR AND SENIOR YEARS

1. Economics 1
2. Mathematics 1
3. Science 1
4. History 1
5. Physical Education 1
6. Art 1
7. Music 1
8. Foreign Language 1
9. Health 1
10. Other 1

	Semester Hours
Econ 161-62 Public Finance and Taxation.....	6
Hist 123-26 Political and Constitutional History of the United States.....	6
Pol Sc 121-22 The Constitution of the United States.....	3
Pol Sc 145 Political Parties and Politics.....	6
Pol Sc 151-52 Public Administration	12
Group Option (To be selected from one of the following groups in consultation with the adviser).....	15
Elective	60
Total.....	60

All Public Affairs majors must complete the *required* courses listed above. The group options provide specification. Modifications and substitutions may be made when appropriate or necessary provided the consent of the adviser is obtained.

Group I—Economics Option

	Semester Hours
Econ 101 Economic Analysis	3
Econ 104 History of Economic Thought.....	3
Econ 105 Business Cycles	3
Econ 165 Government Control of Economic Activity.....	12
Total.....	12

Group II—Politics Option

	Semester Hours
Pol Sc 104 State and Local Governments.....	3
Pol Sc 111 Introduction to Comparative Government and Politics.....	3
Pol Sc 120 Foundations of American Democracy.....	3
Pol Sc 146 Political Pressures and Public Reactions.....	12
Total.....	12

Bachelor of Business Administration

PREREQUISITE—FRESHMAN AND SOPHOMORE YEARS

The following two-year curriculum offered in the lower division of Columbian College of Arts and Sciences is required for admission to the School of Government, Business, and International Affairs in candidacy for the degree of Bachelor of Business Administration with a major in Accounting or Business Administration. Freshman and sophomore students are subject to the regulations of Columbian College of Arts and Sciences.

	Semester Hours
Accounting Accounting 1-2	6
English Composition English 1 or 1X, 2.....	6
*Language or Literature English 51-52, 71-72, 91-92; French 3-4 or 51-52; German 3-4 or 51-52; Russian 3-4 or 91-92; Spanish 3-4 or 51-52	6
Mathematics Mathematics 15, 16.....	6
Science Biology 1-2; Chemistry 3-4, 11-12; Geology 1-2 or 1 and 12; or Physics 1-2 or former 11, 12.....	6
Social Studies Economics 1-2	3
..... Political Science 9-10.....	3
..... Psychology 1	3
..... Anthropology 1, Sociology 2, or Psychology 8.....	3

* This requirement is waived for students who offer 4 years of acceptable high school work in a single foreign language.

	Semester Hours
Statistics 51	3
Education—Students exempt from the physical education requirement will be required to substitute 4 hours of elective	4
Contact—Speech is recommended, students interested in Foreign Commerce include Geography 52)	7-9
Total	64

ACCOUNTING

Programs are offered in three areas of professional specialization: (1) Managerial Accounting in Business; (2) Federal Financial Management—Accounting and Budgeting; and (3) Public Accounting.

REQUIRED—JUNIOR AND SENIOR YEARS

	Semester Hours
Cost Accounting	3
Intermediate Accounting	6
Income Tax Accounting	3
Accounting	3
Fundamentals of Management	3
Business Finance	3
Commercial Law—Contracts, Sales, Agency, and Bailments	3
Commercial Law—Negotiable Instruments, Property, Mortgages	3
Money and Banking	3
Professional Specialization	20
Exclusion of Accounting courses, not more than 6 hours may be taken as a single department)	15
Total	60

Accounting majors must complete the required courses listed above, plus one of the following areas of professional specialization. Special programs and elective courses may be selected in consultation with the Department of Government and Business.

Group I—Managerial Accounting in Business: Students preparing for careers in general accounting in business may specialize in a particular area of accounting, such as management or income tax, or preferably, may concentrate on broadening their knowledge in business administration or in some general field of knowledge. The Managerial Accounting in Business Program then provides maximum flexibility for students to combine basic training in accounting with other major interests, either in preparation for general business responsibilities or in preparation for a more specific field in the financial management field.

Group II—Federal Financial Management—Accounting and Budgeting: Students preparing for careers in financial management in the Federal Government may combine their accounting training with more specialized training in the financial management field.

Group III—Public Accounting: Students preparing for careers in public accounting may combine their accounting training with more specialized training in the financial management field.

management techniques used in administering the complex affairs of modern-day government. A flexible program can be developed in keeping with the specific career objectives of the individual student by the careful selection of electives.

Semester
Hours

Courses relating to Federal Financial Management to be selected with approval of the adviser (may not include Accounting courses in excess of 9 hours)..... 15

Group III—Public Accounting: The Public Accounting Program is a concentrated professional curriculum designed to prepare students for careers in public accounting and the Certified Public Accountants examination. It combines the maximum number of professional accounting courses consistent with the broad educational background essential to successful Accounting careers in the modern business world.

Semester
Hours

Courses relating to Public Accounting to be selected with approval of the adviser 15

BUSINESS ADMINISTRATION

The program in Business Administration is designed to provide the broad foundation required for eventual top leadership in either governmental or business administration. The following 30 semester hours are normally required. In addition students take 15 semester hours in one of the group options and 15 hours of electives, which normally are advanced courses in liberal arts subjects.

REQUIRED—JUNIOR AND SENIOR YEARS

	Semester Hours
BA 101 Introduction to Business.....	3
BA 102 Fundamentals of Management.....	3
BA 105 Personnel Management.....	3
BA 131 Business Finance.....	3
BA 141 Basic Marketing Management.....	3
BA 161 Commercial Law: Contracts, Sales, Agency, and Bailments.....	3
BA 162 Commercial Law: Negotiable Instruments, Property, Mortgages.....	3
BA 193 Case Problems in Management.....	3
Acct 103 Business Budgeting.....	3
Econ 121 Money and Banking.....	3

Group Option (to be selected from one of the following groups)..... 15

Elective (to be selected in consultation with the adviser)..... 15

Total..... 60

Foreign Commerce. Business Administration majors who wish to specialize in foreign commerce may request a modification of the above requirements. The modified major excludes some of the above required courses and adds others, such as a third year of foreign language, foreign markets, exporting and importing, economic geography, and other courses relating to overseas trade. Each program must be approved by the adviser.

All Business Administration majors, except those in foreign commerce, must complete the required courses listed above, plus the group option. Selection of group option courses must be made in consultation with the adviser. Normally no more than 6 semester hours may be taken in an option other than the one selected. Consent of the adviser must be obtained if the student wishes such modification of his option group.

GROUP OPTIONS

Nine areas of specialization are open to Business Administration majors. The 15 hours taken in each of these options require the approval of the adviser. The group

option and the individual courses within the option should be selected no later than the beginning of the second semester of the junior year.

Group I—General Business: The following courses provide the basic academic foundation for general administrative and supervisory positions.

		Semester Hours
Acct 101	Cost Accounting	3
Acct 121-22	Intermediate Accounting	6
BA 107	Labor-Management Contracts	3
BA 109	Office Management	3
BA 113	Real Estate	3
BA 121	Risk Management	3
BA 122	Life Insurance and Estate Planning	3
BA 126	Credit Management	3
BA 128	Investments	3
BA 143	Marketing Research	3
BA 147	Sales Management	3
BA 150	Procurement and Materials Management	3
BA 151	Principles of Transportation	3
BA 157	Introduction to Foreign Trade	3
BA 181	Manufacturing Production	3
BA 184	Business Reports and Analyses	3
BA 185	Economic Analysis	3
BA 187	Business Cycles	3
BA 188	Government Control of Economic Activity	3
BA 189	Transportation Complexes	3
BA 192	World Population and Settlement	3
BA 194	Economic History of the United States	3
BA 197	Group Discussion and Conference Leadership	3

Group II—Personnel Management: The following courses provide the basic academic foundation for such positions as personnel manager, employee relations manager, and personnel manager in business and government service.

		Semester Hours
BA 106	Problems in Personnel Management	3
BA 107	Labor-Management Contracts	3
BA 181	Manufacturing Production	3
BA 184	Business Reports and Analyses	3
BA 185	Management Communication	3
BA 187	Control Systems	3
BA 143	Industrial Communications	3
BA 145	Principles and Problems of Public Relations	3
BA 129	Motivational Factors in Personality	3
BA 131	Psychological Tests	3
BA 144	Personnel Psychology	3
BA 197	Group Discussion and Conference Leadership	3

Group III—Finance: The following courses provide the basic academic foundation for positions as credit analyst, supervisor in a financial institution, bank examiner, trust officer, bank examiner, and similar positions in federal or international financial institutions.

		Semester Hours
BA 111	Financial Statement Analysis	3
BA 121-22	Intermediate Accounting	6
BA 123	Real Estate	3
BA 121	Risk Management	3
BA 126	Credit Management	3
BA 148	Investments	3
BA 162	Law in Relation to the Form of Business Units	3
BA 181	Manufacturing Production	3

	Semester Hours
Econ 101 Economic Analysis	3
Econ 105 Business Cycles	3
Econ 123 Monetary Theory and Policy.....	3
Econ 161-62 Public Finance and Taxation.....	6
Stat 111-12 Business and Economic Statistics I-II.....	6

Group IV—Marketing: The following courses provide the basic academic foundation for such positions as sales manager, circulation manager, route superintendent, product development manager, buyer, promotion manager, and purchasing agent.

	Semester Hours
BA 136 Credit Management	3
BA 142 Marketing Management Problems.....	3
BA 143 Marketing Research	3
BA 145 Sales Management	3
BA 147 Advertising	3
BA 150 Procurement and Materials Management	3
BA 158 Traffic Management	3
BA 171 Principles of Transportation	3
BA 175 Introduction to Foreign Trade	3
BA 176 Exporting and Importing.....	3
BA 178 International Business Operations.....	3
BA 181 Manufacturing Production	3
BA 191 Business Reports and Analyses	3
BA 195 Controllorship	3
Econ 101 Economic Analysis	3
Econ 105 Business Cycles	3
Java 145 Principles and Problems of Public Relations.....	3
Psych 143 Psychology of Advertising and Consumer Behavior.....	6
Stat 111-12 Business and Economic Statistics I-II.....	

Group V—Controllorship: The following courses provide the basic academic foundation for the position of controller in business and government service.

	Semester Hours
Acct 101 Cost Accounting	3
Acct 111 Financial Statement Analysis	3
Acct 121-22 Intermediate Accounting	6
Acct 181 Accounting Systems	3
Acct 191 Advanced Accounting	3
BA 109 Office Management	3
BA 113 Real Estate	3
BA 121 Risk Management	3
BA 163 Law in Relation to the Firm of Business Units.....	3
BA 171 Principles of Transportation	3
BA 191 Business Reports and Analyses	3
BA 195 Controllorship	3
Econ 105 Business Cycles	6
Econ 165 Government Control of Economic Activity.....	
Stat 111-12 Business and Economic Statistics I-II.....	

Group VI—Economics: The following courses provide the basic academic foundation for such positions as financial economic analyst, industrial economic analyst, and market research analyst in business and government.

	Semester Hours
BA 171 Principles of Transportation.....	3
BA 172 Public Utilities	6
Econ 101-2 Economic Analysis	3
Econ 105 Business Cycles	3
Econ 141 Unionism and Collective Bargaining.....	3

	Semester Hours
Stat 142 Labor Economics	3
Stat 161-62 Public Finance and Taxation	6
Stat 165 Government Control of Economic Activity	3
Stat 181-82 International Economics	6
Stat 125 Transportation Complexes	3
Stat 127 World Population and Settlement	3
Stat 111-12 Business and Economic Statistics I-II	6

Group VII—Statistics: The following courses provide the basic academic foundation for such positions as financial statistician, planning statistician, industrial statistician, and rate analyst in business and government.

	Semester Hours
Stat 91 Principles of Statistical Methods	3
Stat 149 Quality Control Techniques	3
Stat 111-12 Business and Economic Statistics I-II	6
Stat 117 Analysis of Variance I	3
Stat 118 Correlation and the Chi-square Test I	3
Stat 155 Introduction to Mathematical Probability	3
Stat 57-58 Mathematical Statistics	6

Group VIII—Transportation and Traffic Management: The following courses provide the basic academic foundation for management positions in transportation firms and in the traffic departments of other types of business firms and government agencies. The student should also use in the preparation for the examinations for membership in the American Society of Traffic and Transportation.

	Semester Hours
Stat 56 Traffic Management	3
Stat 1 Principles of Transportation	3
Stat 123 Public Utilities	3
Stat 174 Commercial Motor Transportation	3
Stat 175 Commercial Air Transportation	3
Stat 176 Introduction to Foreign Trade	3
Stat 125 Economic Analysis	3
Stat 141-42 Transportation Complexes	3
Stat 174 Urban Settlement	6
Stat 111 Economic History of the United States	3
Stat 112 Business and Economic Statistics I	3

Group IX—Automatic Data Processing: Open only to students with a quality-point average of 3.00.

	Semester Hours
Stat 15-16 Finite Mathematics I and II	6
Stat 119 Digital Computer Programming Concepts	3
Stat 120 Comparative Digital Computer Systems	3
Stat 121 Application of Digital Computers	3

BUSINESS AND ECONOMIC STATISTICS

PREREQUISITE—FRESHMAN AND SOPHOMORE YEARS

The following two-year curriculum offered in the lower division of Columbian College of Arts and Sciences is required for admission to the School of Government, Business, and International Affairs in candidacy for the degree of Bachelor of Business Administration.

ness Administration with a major in Business and Economic Statistics. Freshman and sophomore students are subject to the regulations of Columbian College of Arts and Sciences.

	Semester Hours
Accounting Accounting 1-2	6
Economics Economics 1-2	6
English English 1 or 1N, 2	6
Foreign Language	12
Mathematics Mathematics 21, 22, 23	9
Physical Education Students exempt from the physical education requirement will be required to substitute 4 hours of elective.....	4
Political Science Political Science 9-10	6
or Philosophy Philosophy 51-52	6
Statistics Statistics 51 or 91, 52	9
Elective*	
Total.....	64

REQUIRED—JUNIOR AND SENIOR YEARS

The undergraduate program in Business and Economic Statistics is designed as preparation for business and economic analysis, with 30 semester hours of requirements and 30 semester hours of electives from Accounting, Business Administration, Economics, and Statistics.

	Semester Hours
BA 101 Introduction to Business.....	3
BA 102 Fundamentals of Management.....	3
BA 131 Business Finance	3
or 141 Basic Marketing Management.....	3
BA 161 Commercial Law: Contracts, Sales, Agency, and Bailments	3
BA 162 Commercial Law: Negotiable Instruments, Property, Mort- gages	6
Econ 101-2 Economic Analysis	3
Econ 105 Business Cycles	6
Stat III-12 Business and Economic Statistics I-II.....	10
Elective (A), (To be selected from Statistics)	12
Elective (B)	
Total.....	60

The Master's Degrees

Master of Arts in Government

Programs leading to the degree of Master of Arts in Government are offered in the following fields:

Public Administration
Public Affairs
International Affairs

Economic Policy
Business and Economic
Statistics
Personnel Administration

* Credit is not given for courses elected in Physical Education or Secretarial Studies.

Master of Business Administration

Programs leading to the degree of Master of Business Administration are offered in the following fields:

Accounting
Business Administration

Health Care Administration
Personnel Administration

Master of Public Administration

Programs leading to the degree of Master of Public Administration are offered in the fields of Public Administration and Personnel Administration.

GENERAL REQUIREMENTS

A 3.00 average in the undergraduate major is normally required for admission to graduate study. Deficiency in undergraduate preparation may be satisfied by (1) taking specified undergraduate courses and maintaining a 3.00 average in such courses or (2) passing a comprehensive examination in the major field. The comprehensive examination may be taken only with the Dean's approval upon recommendation of the curriculum adviser.

Master's degrees are awarded by vote of the Faculty concerned on completion of the required course work, an acceptable thesis or the equivalent, and the passing of the comprehensive examination. An applicant whose background does not include the necessary courses or equivalent work experience must take a program longer than the minimum hours required.

In addition to any course examinations the candidate must pass a comprehensive examination. Comprehensive examinations are scheduled two or three times a year (usually in December, April, and July), and should be taken during the last semester of course registration or shortly after the completion of the prescribed course work. The candidate must consult with his adviser, well in advance, as to the date of his examination and the definition of the subject matter fields which this examination is to cover. An oral examination on his thesis or major report may also be required.

Second-group courses (numbered 101-200) may be counted toward the Master's degree only when registration for advanced credit has been approved at the beginning of the course by the curriculum adviser. No work counted toward a Bachelor's degree may also be counted toward a Master's degree.

Work for a Master's degree must be completed in five years, unless an extension of time is granted by the Dean.

A student who expects to continue his studies for the degree of Doctor of Philosophy, Doctor of Business Administration, or Doctor of Public Administration, after receiving the Master's degree, will be assisted in planning his program so that he may qualify for admission to candidacy for the Doctorate.

Credit is granted for work done *in absentia* or without formal instruction, for hospital residency and the thesis, which may be completed *in absentia* with the permission of the department, curriculum adviser, or committee concerned.

SCHOLARSHIP

Grades for graduate work are *E* (excellent), *S* (satisfactory), *U* (unsatisfactory), and *I* (incomplete). *CR* indicates credit. A minimum of 6 of the required semester hours of course work completed in the Master's program must be graded *E*.

A Master's candidate who has accumulated more than 6 semester hours of *U* will be automatically suspended.

REQUIRED COURSES IN ADMINISTRATION

(Certain Fields)

Breadth and background in general administrative theory and practice are provided by the following courses, which are *required* of all Master's candidates in the fields of Public Administration, Business Administration, Health Care Administration, and Personnel Administration.

BPA 201 Advanced Administrative Management (3)

BPA 204 Quantitative Factors in Administration (3)

BPA 207 Human Factors in Administration (3)

In addition, each student is normally required to take one of the following courses appropriate to his specific area of concentration:

BA 297 Case Studies in Business Administration (3)

HCA 266 Case Studies in Health Care Administration (3)

PA 298 Case Studies in Public Administration (3)

THE THESIS

The thesis subject should be selected as early as possible so as to permit effective integration with the course work.

The subject must be approved by the professor in charge and recorded in the Office of the Dean by the date announced in the calendar. The thesis in its final form must have the approval of the professor in charge and must be presented to the Dean by the student no later than the date announced in the calendar. Printed copies of detailed regulations regarding the form and reproduction of the thesis are available in the Office of the Dean.

Payment of tuition for the thesis entitles the candidate, during the academic year of registration, to the advice and direction of the member of the Faculty under whom the thesis is to be written. In case a thesis is unfinished, an additional successive academic year is granted without further tuition payment. The student must, however, be registered in residence during this period. If the preparation of the thesis extends beyond the two-year period, the student must register and pay tuition as for a repeated course.

Master of Arts in Government

Curricula leading to the degree of Master of Arts in Government are available in the fields of Public Administration, Public Affairs, International Affairs, Economic Policy, Business and Economic Statistics, and Personnel Administration.

The programs leading to this degree require a minimum of 30 semester hours of work, including 24 hours of course work and a thesis equivalent to 6 semester hours. In recent years, most individual student programs have exceeded 30 hours, dependent upon the undergraduate major and other prerequisites.

Second group courses (numbered 101-200) may be counted toward the Master's degree up to a maximum of 12 hours, but only when registration for advanced credit has been approved at the beginning of the course by the curriculum adviser. No credit toward a Bachelor's degree may also be counted toward a Master's degree.

LANGUAGE REQUIREMENTS (Certain Fields)

A candidate for the degree of Master of Arts in Government with a major in Economic Policy, International Affairs, or Public Affairs must show that he has a reading knowledge (certified by the appropriate language department) of at least one modern foreign language, to be approved by the Dean. The language examination should be taken before the student begins the second 15 hours of his work. No student may take the examination more than three times.

PUBLIC ADMINISTRATION

Prerequisite: an undergraduate background in social science or business administration or equivalent work experience.

The program, in contrast to the professional program leading to the degree of Bachelor of Public Administration (see pages 43-44), is designed for students who wish to emphasize the academic elements of Public Administration. It is primarily for those who have not yet had work experience in managerial positions in government, but who wish to pursue a government career. It may also serve as a basis for the degree of Doctor of Philosophy (Graduate Council) in related fields.

It is a suitable degree objective for students who have just completed the undergraduate degree.

Fields must be offered for examination: (1) administration and policy for government; (2) a choice from the fields of public personnel management, financial management and budgeting in government, data processing and systems management, human factors in administration, accounting and statistics; (3) a choice from a major area of study in such academic fields as economics, geography, political science, psychology, and sociology.

The 24 semester hours in the program, Public Administration 299-300, represent the course work and preparation of the thesis.

The course work is planned with an adviser and must include the required courses in administration, page 36.

PUBLIC AFFAIRS

Prerequisite: an undergraduate major in public affairs, economics, history, or political science, depending upon the field of specialization. Any course deficiency in the undergraduate Public Affairs Curriculum, as stated on pages 27-28, must be made up.

The language requirement, see above, must be satisfied.

The program in Public Affairs is offered in two fields of specialization: domestic economics and domestic politics.

Recommended for domestic economics: courses in economic development, economic policy, public finance, and national income.

Recommended for domestic politics: courses in United States social, constitutional, and political history; comparative government; political theory; legislative organization; jurisprudence; political parties; and public opinion.

INTERNATIONAL AFFAIRS

Prerequisite: the applicant's undergraduate program should include background courses corresponding to an undergraduate major in International Affairs at this University. (See pages 26-27.)

Any omissions in the applicant's former program must be made up by appropriate courses in addition to the requirements for the Master's degree.

The language requirement, page 37, must be satisfied.

The program in International Affairs is offered in five fields of specialization: international economics, international politics, international communications, regional studies, and Sino-Soviet affairs.

The listing of graduate courses for these fields of specialization is given in the departmental offerings for Economics, History, Political Science, Geography and Regional Science, Psychology, and Sociology and Anthropology.

Group I—International Economics: Graduate courses in economics (numbered over 200) in the field of international trade, the balance of payments, international financial policies, and international economic policies form the principal part of this specialization. Graduate courses in economic theory are recommended. Other courses may be included with the consent of the adviser.

Group II—International Politics: Graduate courses in political science and history (numbered over 200), in international law, international politics, international organization, diplomatic history, and American foreign policy, comprise the principal requirements for this specialization. Related courses may be added with the consent of the adviser.

Group III—International Communications: Graduate courses (numbered over 200) in political science, psychology, sociology and anthropology, and geography with 12 hours (one-half of the course work) in the fields of public opinion, international information, psychological warfare, and communications, and 12 hours (one-half of the course work) in the fields of international politics and area studies. The adviser in all cases must approve the course selections.

Group IV—Regional Studies: Graduate courses in economics, political science, history, and geography (numbered over 200) dealing with a geographic region, such as Latin America; Europe; Africa and the Middle East; Asia; the Soviet Orbit (see Institute for

Sino-Soviet Studies, pages 47-48); or the Pacific Area, comprise the principal requirements. Other courses of broader scope in economics, history, and political science are recommended as part of the program. The adviser in all cases must approve such selections.

Group V.—Sino-Soviet Affairs: The Institute for Sino-Soviet Studies provides a program of inter-disciplinary study centered on the problems of the Sino-Soviet areas and the International Communist Movement. Graduate studies under the auspices of the Institute are available to qualified students. Courses and seminars are designed to analyze the principles and problems of International Communism and to study the policies, strategies, and tactics of the major Communist powers. (See pages 47-48.)

ECONOMIC POLICY

Prerequisite: an undergraduate major in economics or the equivalent.

The 30 hours of course work must include Economics 210, 265-66; and the thesis, Economics 299-300.

The language requirement, page 37, must be satisfied.

Recommended: courses in income and employment, national income, business cycles, monetary and fiscal policy, economic theory, and statistics. These courses and others that may be appropriate are to be selected with the consent of the adviser.

BUSINESS AND ECONOMIC STATISTICS

Prerequisite: an undergraduate major in Business and Economic Statistics, or the equivalent; such work must include a minimum of 24 semester hours of second-group courses in statistics and a minimum of 10 semester hours in second-group courses in accounting, business administration, and economics.

This program requires at least 12 semester hours of graduate courses in statistics. The remaining courses are to be selected from graduate offerings in accounting, business administration, economics, public administration, and statistics with the approval of the adviser. A thesis equivalent to 6 semester hours is required.

PERSONNEL ADMINISTRATION

The program in personnel administration leads to the degree of Master of Arts in Government, to the degree of Master of Public Administration (if elective courses are directed toward Public Administration), or to the degree of Master of Business Administration (if elective emphasis is directed toward Business Administration).

The course work must include the required courses in administration, page 36, and the thesis (Business Administration 299-300 or Public Administration 299-300). Each individual student program is arranged in consultation with a curriculum adviser.

Master of Business Administration

Curricula leading to the professional degree of Master of Business Administration are available in the fields of Accounting, Business Administration, Health Care Administration, and Personnel Administration.

The purpose of the programs leading to the degree of Master of Business Administration is to develop the analytical ability and perspective which will contribute to success as a responsible executive. Because of the increasingly close relationship between government and business, these programs also provide an excellent background for many government careers. In order to provide maximum flexibility, each student program is planned with an adviser.

An applicant must have a Bachelor's degree from an accredited college or university.

The degree is awarded by vote of the Faculty upon satisfactory passing of the comprehensive examination, and the submission of an acceptable thesis. The complete program consists of 60 semester hours, 54 hours of course work and 6 of these; and students with *no* previous background in business administration or accounting are rarely advised to take the comprehensive examination before completing 54 hours of course work. Students who have an undergraduate background in either business administration or accounting, however, are encouraged to take the comprehensive examination as soon as the curriculum adviser believes they are prepared for it. A student who has completed an undergraduate major in accounting or in business administration with a good record may qualify under a minimum acceptable program of 30 hours, including the thesis. No more than 6 hours of graduate course credits can be transferred from other institutions and each transfer of credit must be approved by the Dean.

ACCOUNTING

The Master's programs in accounting are designed (1) for those who wish to pursue careers as professional accountants, (2) for those who wish to pursue careers of executive responsibility with emphasis on finance and accounting in either business or government, and (3) for those who wish to pursue careers as teachers of accounting. Programs are sufficiently flexible to meet individual student objectives; selection of courses is made in consultation with the adviser. The programs are available in three basic areas, professional accounting (preparing for C.P.A. designation), governmental accounting, and managerial accounting.

BUSINESS ADMINISTRATION

The Master of Business Administration program is designed for those who wish to pursue responsible careers as administrators in either government or business.

Individual programs are planned in consultation with the adviser to fit the professional objectives of the student. The course work must include the required courses in administration, page 30. Fields of study include administrative theory and practice; personnel management; finance; foreign commerce; marketing, procurement, and production; automatic data processing; and transportation and public utilities.

HEALTH CARE ADMINISTRATION

The programs in Health Care Administration lead to the degree of Master of Business Administration with areas of concentration in the administration of short-term hospitals, long-term care facilities, and health records. The basic curriculum outlined under the field of hospital administration, below, serves all three areas of concentration. Electives appropriate to the field of concentration are selected from the special courses in long-term care administration and those in health records administration.

The Health Care Administration programs are designed to give students the opportunity of acquiring the knowledge, attitudes, and skills essential as foundations for growth into capable Health Care administrators.

Prerequisite: a Bachelor's degree from an accredited college or university is prerequisite to admission to all Health Care Administration programs. While a 3.00 (B) average in the undergraduate work is expected, in the selection of candidates considerable weight is given to personal qualifications, aptitude for the area of concentration selected, and practical experience. Hospital work experience is desirable but not required. Preadmission experience in a hospital is arranged on request or otherwise indicated.

While no undergraduate major is specified, a desirable background for short-term hospitals and long-term facilities (prerequisite requirements in the field of health records administration are stated on pages 42-43) would include courses in accounting, biology, business administration, economics, psychology, sociology, and statistics. A minimum of 3 semester hours each of undergraduate accounting and statistics must be taken prior to admission to degree candidacy. Applicants with academic deficiencies may be permitted to enroll as special students subject to the satisfactory completion of prescribed courses beyond the minimum requirements for admission.

Master's candidates who may wish to continue for a doctorate should plan the doctor's program accordingly, in consultation with their advisers.

In addition to the degree programs in Health Care Administration, special courses are offered which are concerned with health care associations, planning agencies, consulting firms, and insurance plans.

HOSPITAL ADMINISTRATION

The program in hospital administration is divided into two phases. During the first phase the student must satisfactorily complete 36 semester hours of coursework, selected in accordance with his background needs. These courses cover the general and technical background of hospital administration, general administrative theory and practice, and problem solving in the area of management as it relates to short-term hospitals. The second phase is a calendar-year residency of on-the-job institutional training under qualified supervision, which carries 9 semester hours credit. A written major report is required as a part of phase two. Selected students may take an additional full year of residency, for which they receive 9 hours of credit.

Full-time students should complete the degree program in twenty-two months; part-time students in thirty-six months. Under special circumstances, additional time may be granted. No student is admitted who does not intend to complete the program.

With special permission, additional research and course work may be substituted for a part of the clinical training. Because each program is designed for the individual student, it is possible that a student may be required to complete two years of academic work and only three months of residency.

CURRICULUM

The following curriculum is required of Master's candidates in all fields of Health Care Administration:

	Semester Hours
BPA 201 Advanced Administrative Management.....	3
BPA 204 Quantitative Factors in Administration.....	3
*BPA 207 Human Factors in Administration.....	3
HCA 202 Introduction to Health Care Administration.....	3
HCA 203 Organization and Management.....	3
HCA 206 Case Studies in Health Care Administration.....	3
HCA 209 Health Care Economics.....	3
HCA 212 Planning and Constructing Health Care Facilities.....	9
HCA 293-94-95 Residency I.....	12
Elective (With approval of the adviser).....	45
Total.....	45

ADMINISTRATION OF LONG-TERM FACILITIES

Master's candidates electing a concentration in the administration of long-term care facilities, such as chronic disease hospitals, nursing homes, facilities for the aged, and mental hospitals, have the same admission requirements as students in the hospital administration field and follow the curriculum outlined above to satisfy the 36 semester hour requirement of the first phase of the degree program. With the approval of an adviser, electives are selected from the following courses, in accordance with the special interest of the candidate:

	Semester Hours
HCA 250 Administration for Mental Care.....	3
HCA 260 Administration for Long-term Care Facilities.....	3
HCA 261 Business Procedures in Long-term Care Facilities.....	6
HCA 265-66 Readings in Long-term Care Administration.....	3
HCA 267 Social Gerontology for the Administrator.....	

The second phase of the program consists of a calendar year of residency in one or more facilities for long-term care, for which the student receives 9 semester hours of credit. During the residency year the candidate must write a major report.

HEALTH RECORDS ADMINISTRATION

Students electing this concentration may terminate their study with the completion of the first phase, at which time a certificate is awarded, or they may complete the requirements for the Master's degree.

* When appropriate, hospital administration students may take Psychology 245, Seminar: Employee Motivation and Morale, and or omit BPA 207 if content is included in other course requirements.
† The student must complete the residency year at the end of the first phase and before leaving the University for the residency hospital. Registration for 1965 will be held May 28, 1965.

The first phase consists of the following 30 semester-hour curriculum and an internship of approximately four months.

	Semester Hours
BA 211 Personnel Management and Industrial Relations.....	3
BA 218 Survey of Data Processing.....	3
HCA 203 Organization and Management.....	3
HCA 205 Hospital Management Procedures.....	3
HCA 221-22 Fundamentals of Medical Science and Medical Terminology.....	6
HCA 225-26 Principles of Health Records and Problems in Medical Records Administration.....	6
HCA 229 Health Records Administration Internship.....	3
STAT 120 Principles of Statistical Analysis.....	3
Free elective (With approval of the adviser).....	3

The second phase consists of additional prescribed course work (approximately one semester of full-time study) and a period of residency suitable to meet the requirements for the Master's degree and a written report on a major work project.

Prerequisite: a Bachelor's degree from an accredited college or university is required, including 6 semester hours in human anatomy and physiology. A broad liberal arts background is preferred, including courses in such fields as anatomy, biology, business administration, history, logic, physiology, and sociology.

PERSONNEL ADMINISTRATION

The field of Personnel Administration is described on page 30 and may lead to the degree of Master of Arts in Government, Master of Business Administration, or Master of Public Administration.

Master of Public Administration

This program provides a course of study appropriate for those students currently in government or with appreciable past experience in government. This is a professional degree, preparing graduates for positions of higher responsibility in the public service and generally improving their competence in public employment. Work done for this degree may lead directly toward the degree of Doctor of Public Administration. Applicants must have a Bachelor's degree from an accredited college or university.

The degree is awarded by vote of the Faculty upon satisfactory passing of the comprehensive examination, and the submission of an acceptable thesis. The program consists of 60 semester hours, 54 hours of course work and 6 of thesis. Students with a limited background in public administration, political science, or a closely related social science are rarely advised to take the comprehensive examination before completing 54 hours of course work. However, students who have undergraduate backgrounds in political science, history, economics, sociology, or psychology, or appropriate career experience are encouraged to take the comprehensive examination as soon as the curriculum adviser believes they are prepared to do so. The minimum acceptable program is 30 hours. Students who have completed the Public Affairs undergraduate major at The George Washington University

sity, or its equivalent, with good records, may complete the requirements for the degree of Master of Public Administration within a 30-hour minimum, including the thesis. No more than 6 hours of graduate credit can be transferred from other institutions; and each transfer of credit must be approved by the Dean.

The course work for the Master of Public Administration degree must include the required courses in administration, page 36. Other courses, selected with the approval of the adviser, should be concerned with selected fields of administration in government and related social and economic studies. The thesis, which may be a major case study, is prepared under the guidance of an appointed adviser.

Candidates are required to offer the field of administrative theory and practice. In addition, students select, in consultation with an adviser, two fields from the following: administration in the Federal Government, international public administration, public personnel management, public financial management and budgeting, human factors in administration, business-government relations, metropolitan administration and urban affairs, data processing and systems management. Fields of study may also be selected from closely related social sciences.

Doctoral Study

Work for the degrees of Doctor of Business Administration and Doctor of Public Administration is under the supervision of the Committee on Doctoral Studies.

An applicant must have the degree of Master of Business Administration or Master of Public Administration, as appropriate; Master of Arts in an approved field; or the equivalent, together with acceptable personal qualities and a capacity for creative scholarship. Each applicant must demonstrate his competence by qualifying examinations in two tools of research, chosen as the individual program dictates from the following: statistical methodology, accounting, reading and English translation ability in a modern foreign language, research methodology in the social sciences, research methodology in the engineering and physical sciences, and cartography. Other tool subjects may be substituted in accordance with the needs of individual programs.

The Committee on Doctoral Studies, in consultation with the applicant, will (1) designate six fields of study selected from such areas as Business Administration, Economics, Health Care Administration, International Affairs, Public Administration, Public Affairs and Political Science, and (2) appoint an adviser to guide the student in his work in these fields. Most students will complete 30 semester hours in graduate courses and such additional course work as may be prescribed by the adviser; but each program is individually arranged in light of the student's background.

When the applicant has satisfied his adviser and the Committee of his readiness to take the General Examination in the fields of study previously designated, the examination will be scheduled during the following January or May.

Upon successful completion of the General Examination and approval of the subject of the doctoral dissertation, the student may be admitted to candidacy by the Committee on Doctoral Studies. The candidate's research and the preparation of his dissertation are supervised by a Research Adviser designated by the Committee.

THE DISSERTATION

No later than the date specified in the University calendar the candidate must submit to the Dean three complete copies of the dissertation (including a summary which is to be inserted as an appendix) together with a fourth copy of the summary and a copy of the abstract for inclusion in the announcement of the examination. It is the responsibility of the candidate for a Doctoral degree to obtain from the Dean a printed copy of the regulations governing the writing and reproduction of the dissertation, which are rigidly enforced. The summaries of accepted dissertations will be printed in a numbered issue of the *UNIVERSITY BULLETIN*. The successful candidate for the doctorate is required, before receiving his degree, to pay a fee to cover the expense of printing the summary of his dissertation. Accepted dissertations, with accompanying drawings, become the property of the University and are deposited in the University Library, where the duplicate copies are bound and made available for circulation. Permission to publish or adapt material in them must be secured from the Dean.

THE FINAL EXAMINATION

The Final Examination of the candidate consists of his oral defense of the dissertation. The examination will be given by a committee appointed by the Committee on Doctoral Studies. Upon successful completion of this oral examination the candidate will be approved for the degree of Doctor of Business Administration or Doctor of Public Administration by the Committee on Doctoral Studies.

RESIDENCE AND CONTINUOUS REGISTRATION

The Committee on Doctoral Studies expects all students to work on their doctoral degrees in residence, although there is no formal regulation concerning the minimum amount of time of resident study either in preparation for the General Examination or as a doctoral candidate engaged in doctoral research. The student who pursues either part of the doctoral program on full or limited schedule must, in accordance with University regulations, maintain continuous registration under the School of Government, Business, and International Affairs even when he is granted leave of absence for study or residence elsewhere. Failure to maintain registration at the end of each semester of the academic year disrupts the residence status of the student. In such case, the student must reapply for admission to the School, under whatever conditions and regulations are set up by the Committee or the member of the faculty who directs his research. The student who has completed his tuition requirements, but whose graduation is deferred for any reason, must maintain "in residence" status by paying the residence fee for the semester immediately preceding graduation at which he expects to receive his degree.

TEACHING FELLOWSHIPS AND GRADUATE ASSISTANTSHIPS

A limited number of teaching fellowships are assigned annually to certain departments of instruction open to doctoral students registered in the School of Government, Business, and International Affairs. Graduate assistants are often appointed

to assist in the academic program. Applicants for teaching fellowships and graduate assistantships should inquire directly of the chairman of the department concerned regarding vacancies, details of appointment, and the kind of personal data to be supplied for consideration.

The degree of Doctor of Philosophy in the field of International Relations is offered in the Graduate Council of the University. The Doctoral program in this field includes work in economics, history, and political science. Students working towards the degree of Doctor of Philosophy in the fields of Political Science, History, and Economics can arrange concentrations in various aspects of international affairs. Requirements for the degree of Doctor of Philosophy are listed in the catalogue of the Graduate Council.

Special Programs

The Government Management Intern Scholarship Program offers annually fifty scholarships to assist federal agencies in training carefully selected young men and women for administrative leadership in government career service. Each scholarship provides a tuition-free course of 3 hours a semester and appropriate academic credit (up to 6 semester hours) for the successful completion of training assignments required in any agency whose training program has been approved for this purpose by the University.

The Navy Graduate Financial Management Program, sponsored by the Naval Postgraduate School, provides 50 semester hours of work in financial management and related fields for a selected group of Naval and Marine officers. The Master of Business Administration degree is awarded upon successful completion of this full-year program.

The Air Force Advanced Management Program, sponsored by the United States Air Force Institute of Technology, provides 50 semester hours of work in advanced management and supporting fields for a selected group of Air Force officers. Most of the officers receive the Master of Business Administration degree upon successful completion of this full-year program.

The School of Government, Business, and International Affairs cooperates with the College of General Studies in the Off-Campus programs of that College, particularly in the fields of accounting, business administration, financial management, governmental administration, international affairs, and personnel administration. Special Master's degree programs have been established by the College of General Studies in cooperation with the School of Government, Business, and International Affairs for the students and faculty of the Army War College, Carlisle Barracks, Pennsylvania; the Air War College and the Command and Staff College, Air University, Maxwell Air Force Base, Alabama; the Industrial College of the Armed Forces and the National War College, Fort McNair, Washington, D. C.; and the Naval War College, Newport, Rhode Island. These programs lead to the degrees of Master of Arts in International Affairs, Master of Science in Business Administration, Master of Science in International Affairs, and Master of Science in Public Administration.

Center for Behavioral Sciences

The Center, administratively related to the School of Government, Business and International Affairs, was established as an inter-departmental and inter-disciplinary organization for encouraging behavioral science research, projects, and programs. Projects are sponsored and financed by foundations, governmental agencies, private organizations, and individuals.

A Faculty Executive Committee gives University supervision, and a nation-wide Advisory Board provides policy recommendations for long-range planning. Faculty members and students participate in the research activities of the Center for the Behavioral Sciences.

Results of research studies and related projects are reported through a publication program of the Center. A two-week Laboratory utilizing sensitivity training is sponsored annually by the Center and the College of General Studies in cooperation with the National Training Laboratories of the National Education Association.

The Management Research Group

The Management Research Group seeks to serve government and industry and commerce by contributing to the development and understanding of basic theory in the field of management. The Group also provides assistance in translating theory into practice.

Relationships and techniques important to modern information flow and managerial decision-making are stressed. The research conducted extends to system design, analysis of system performance, and the evaluation of practice in relation to managerial criteria.

Institute for Sino-Soviet Studies

GRADUATE STUDY AND RESEARCH IN COMMUNIST AFFAIRS

The Institute for Sino-Soviet Studies provides a program of inter-disciplinary study centered on the problems of the International Communist Movement and the Sino-Soviet areas. The Institute also conducts integrated research on the historical, ideological, political, economic, sociological, psychological, anthropological, geographic, legal, and military aspects of Communism and Communist political systems, as manifested in the Soviet Union, Red China, and the other components of the Communist orbit.

Graduate study under the auspices of the Institute is available to qualified students who wish to focus on Sino-Soviet Affairs. Courses in the history, political

science, geography, economics, and military strategy of the Soviet Union, Communist China, and other Communist countries are offered regularly.

The Institute also offers specialized courses based on research in progress, contemporary events, and international pressures. They are open on a credit or non-credit basis to students whose backgrounds fit them for participation. Appropriate specialization, geographic and otherwise, building upon an integrated background in the Sino-Soviet field, is encouraged in curriculum planning.

The graduate courses and seminars provide an opportunity for the analysis of the principles and problems of International Communism and the study of the policies, strategies, and tactics of the Communist powers. This combined approach is necessary for an understanding of the past, present, and future of the Communist Movement, and for a demonstration of how Communism affects the attitudes and policies of Communist countries. It is hoped that through the use of a multi-disciplinary approach students will understand more fully the nature of the protracted conflict which confronts the free world.

Students may undertake work toward a Master's or Doctoral degree in International Affairs with emphasis on Sino-Soviet Affairs.

Qualified graduate participation in the research program is encouraged, especially for Doctor of Philosophy candidates.

A special brochure describing in more detail the work of the Institute is available on request.

Student Services and Activities

RESIDENCE HALLS

Complete information concerning the University's residence halls is available at the Office of the Dean of Men or the Office of the Dean of Women, The George Washington University, Washington, D. C. 20006.

Information concerning off-campus housing near the University may be obtained at the Office of the Dean of Men. The reservation of rooms in private houses must be made by students.

Admission to the University does not include a room reservation. A separate application for a room should be made well in advance (for the fall semester by May first, for the spring semester by January first). Rooms are leased for the academic year, and a deposit of \$100, which is credited toward the fall semester room charge, is required. If notice of withdrawal or cancellation of room reservation is received prior to June 1, \$30 of the deposit will be refunded. Room rentals are payable in advance by the semester.

RESIDENCE HALL RATES FOR TWO SEMESTERS — 1963-64

For Men:	Room and Food Service		Room only
Adams Hall		\$900	—
double room		850	—
triple room			—

Crawford Hall	900	—
Calhoun Hall	900	\$400
Madison Hall	920	420
Weiling Hall	920	320
For WOMEN:		
New Residence Hall	\$950	—
Strong Hall	—	—
double room	950	\$450
single room	1,035	545

FOOD SERVICE

Residents of the new women's Residence Hall, Crawford and Adams Hall participate in a room and food service plan. The food service is optional for the residents of Calhoun, Madison, Strong, and Weiling Halls. Meals may be taken either in the new Women's Residence Hall or in the Residence Hall dining room at the Student Union. Well-balanced meals are served cafeteria style seven days per week (25 meals). Food service payment does not cover University holidays or vacation periods.

All unmarried women students under twenty-two years of age and enrolled for six or more hours of academic work during the fall or spring semester or six or more hours during a summer session are required to live in the University residence halls or at home with their parents. Upon written approval of their parents and the permission of the Dean of Women, freshman women may live with immediate relatives and upperclass women may live with contemporaries of their parents. Under no circumstances may an unmarried woman student under twenty-two years of age live in an apartment with her contemporaries.

All unmarried freshman men under twenty-one years of age and enrolled for six or more hours of academic work during the fall or spring semester or six or more hours during a summer session are required to live in the University residence halls or at home with their parents. In exceptional cases permission to live elsewhere may be given a student by the Dean of Men.

STUDENT UNION

The Student Union, 2125 G Street NW, is the center for student life. From the cafeteria on the first floor to the reading room on the fourth floor, it is well planned to meet the students' need for meals, study, recreation, and activities. In addition to the recreation lounge and social lounge the Student Union provides office space for the Student Council and for the other major student organizations.

The Student Activities Office, also in the Student Union, has available information concerning the student organizations and campus events.

HEALTH SERVICES

The Health Services Staff assists students with their medical needs by advice and treatment, by proper referral when necessary, and by cooperation with other physicians. For medical emergencies and health consultations there is, on the campus, a Student Health Clinic open from 9 A.M. to 5 P.M., Monday through Friday, during the academic year and Summer Sessions, with physician and nurse in attendance.

There is also a rest room for women, with a graduate nurse in charge. For night and week-end emergencies, students may go to the emergency room of the University Hospital for treatment. The basic fee for this visit will be paid by the Health Services, and all other charges will be the responsibility of the student. This arrangement is for emergency care only.

Medical privileges include: (1) physical examination of all students who are applicants for courses in Physical Education;* (2) three visits in any one illness by a member of the Health Services Staff, office or residence (District of Columbia); (3) hospitalization, including board and nursing, in the University Hospital for not more than one week during any twelve-month period—the necessity to be determined by the Director of Health Services;† All additional hospital charges for operating room, anesthetics, laboratory, X-ray, medications, or any special services must be paid by the student. Expenses incurred for examinations and treatment by specialists, such as eye refraction and provision of glasses; orthopedic examinations and application of cast or other appliance; laboratory and X-ray work; and surgical operations must be paid by the student.

This medical benefit applies only to illness or disability incurred while currently enrolled in the University. It does not apply to illness or disability incurred between the last day of examinations for a semester or summer session and completion of registration for the next semester or summer session.

The student is allowed, if he so desires, to engage physicians and nurses of his own choice, but when he does so he will be responsible for the fees charged.

Rules: (1) The Director of Health Services is empowered to limit or deny the medical benefits where, in his discretion, a student has, by his misconduct or breach of the rules of the University, made himself ineligible; (2) the Director of Health Services has authority to determine the necessity and length of hospitalization; (3) a student not currently enrolled or one who has severed his connection with the University is ineligible for medical benefits; (4) a student intending to train for an athletic team is required to pass a thorough examination at the beginning of each semester; (5) hospitalization is not available to those students availing themselves of other hospitalization coverage for the same illness.

The University is not responsible for injuries received in intercollegiate or intramural games, or in any of the activities of the physical education departments.

The University is not responsible for injuries received in intercollegiate or intramural games, or in any of the activities of the physical education departments.

VETERANS EDUCATION

The personnel of the Office of the Dean of Men, act as advisers to veterans and war orphans and in a liaison capacity between the University and the Veterans Administration. This Office should be consulted concerning educational benefits before applying to the Veterans Administration for certification. The Veterans Administration is on Constitution Avenue at Twentieth Street NW., Washington, D. C. 20421.

Students eligible under one of the state laws should also contact this Office.

PUBLIC LAW 634 (WAR ORPHANS' EDUCATIONAL ASSISTANCE ACT)

A child of a person who died of a disease or injury incurred or aggravated while on active duty in the Armed Forces during World War I, World War II, or the Korean War is eligible for educational assistance if a student fails to appear for a physical examination during the period set for this purpose.

* A charge for a special physical examination is made by the University if a student fails to appear for a physical examination during the period set for this purpose.

† See rule (3) for exception.

in Conflict may be eligible for educational assistance under this Act, if certain age requirements are met. In the case of a child who has not reached the age of majority, the guardian must make application for him to the Veterans Administration.

PUBLIC LAW 190 (WORLD WAR II GI BILL EXTENSION)

The educational benefits for World War II veterans terminated July 25, 1956, except for persons eligible under special enlistment provision.

PUBLIC LAW 550 (KOREAN GI BILL)

To be eligible, a veteran must have been in service between June 27, 1950 and July 31, 1955, no longer be on active duty, and have begun his education within one year after separation. Such students have eight years from separation or January 1, 1967, whichever is earlier, to use their benefits. Application for benefits to the Veterans Administration should be made as early as possible. The V.A. approval should be presented to the veterans adviser from the Office of Men during the registration procedure.

PUBLIC LAWS 16, 894, AND 87-815 (VOCATIONAL REHABILITATION)

Disabled veterans desiring vocational rehabilitation under these laws should apply to the Veterans Administration for approval of their training objectives at least sixty days prior to registration.

AIR FORCE ROTC PROGRAM

A brochure describing the Air Force ROTC program in detail is available on request to the Division of Air Science, The George Washington University, Washington, D.C. 20006.

THE TESTING AND COUNSELING CENTER

The Testing and Counseling Center, 718 Twenty-first Street NW., offers services available primarily to students enrolled in the University, and secondarily to school students and to adults of the community. The services are designed to assist individuals in the evaluation of their educational and vocational potential and objectives, diagnose academic difficulties, provide educational and vocational literature and information, and refer individuals to agencies for assistance with problems not handled by the Center. The Center provides special testing services including diagnostic tests prescribed by the School of Engineering and Applied Science, admissions tests for the University, and for other selected educational institutions and tests for business and industry.

Fees—For students who are currently registered as degree candidates in the University, the fee is \$10; for students currently enrolled in the University but not as degree candidates, the fee is \$10; for graduates of the University, \$50; for community college students, \$50. Fees for specialized testing are dependent upon the services involved. Fees are payable at the Office of the Center.

THE READING CENTER

The Reading Center, 2018 Eye Street NW., offers individual diagnostic and corrective services for all levels: primary, elementary, secondary, and adult. In addition special reading improvement classes are conducted on the high school and adult level.

A complete diagnosis includes psychological tests; vision, hearing, and dominance tests; and the various reading and spelling tests. Results are interpreted and a written report is presented in conference with the parents or the individual.

The special reading classes for high school students and adults are offered throughout the year at stated intervals. Emphasis is placed on improvement of vocabulary, speed, comprehension, and study skills. Machines such as the tachistoscope, rate accelerator, and controlled reader are also used for increasing speed of comprehension.

Fees.—The fee for individual diagnosis is \$45; for individual instruction, \$6 a lesson; for semi-individual instruction, \$5 a lesson; for instruction in small groups with common reading difficulties, \$3.75 a lesson (\$3.25 for students currently registered in the University). All fees are payable in advance at the Office of the Cashier.

THE SPEECH CLINIC

The Speech Clinic, Lisner Auditorium, 730 Twenty-first Street NW., offers diagnostic and corrective work for children and adults with such speech difficulties as stuttering, lisping, cleft palate, cerebral palsy, aphasia, foreign accent, voice, and articulatory problems.

Fees.—There is no charge for the diagnosis. The fee for individual instruction is \$7 an hour; for group instruction, \$4 an hour. Fees are payable at the Office of the Cashier.

INTERNATIONAL HOUSE

International House, 2110 G Street NW., is the social center for students from foreign countries. A series of teas, dances, and other forms of entertainment, and the use of club rooms and lounge enable students to become acquainted and feel at home in the University.

The International Student's Society welcomes as members students from other lands as well as North American students. The Adviser to Students from Foreign Countries, whose office is in International House, is available for advice and guidance.

THE PLACEMENT OFFICE

The Placement Office, 2114 G Street NW., provides assistance to students and alumni seeking full-time, part-time, temporary, or permanent employment. The Office maintains a registry of positions available in many fields, both locally and nationally, and refers qualified applicants for consideration. The Office administers the On-Campus Industrial and Government Recruitment Interview Program for seniors and graduate students, in which well over 150 private companies, as well as certain government agencies participate. This program offers outstanding employment opportunities to persons seeking career positions.

Students and alumni interested in placement are asked to register in person at the Placement Office and to select from written descriptions of current openings positions for which they wish referral. Those interested in planning careers are invited to study the information on career fields and the brochures of business, industry, and government. These are on display in advance of campus visits by recruiting officers. The services of the Counseling Center are available to students and alumni wishing career guidance.

The Placement Office is open from 9:00 A.M. to 5:00 P.M., Monday through Friday.

STUDENT ACTIVITIES

DIRECTORS OF STUDENT ACTIVITIES

The University maintains the offices of the Dean of Men and the Dean of Women. In the guidance of students in all nonacademic phases of student life, such as student activities, social life, and housing. The deans are available for individual counseling concerning personal adjustment to university life.

STUDENT GOVERNMENT

Student Council.—The Student Council, which is elected annually by the Student Body, is responsible for the conduct of student activities.

Committee in Student Life.—The Committee on Student Life is the judicial branch of the student government. It is composed of not more than seven members of the Student Body, two of whom are the Dean of Men and the Dean of Women, appointed by the President of the University, and the following members: President of Student Body, Editor of the *Hatchet*, President of Marine Board, President of Omicron Kappa, President of the Interfraternity Council, and President of Panhellenic Council.

This Committee has the power to review the acts of all student organizations including the Student Council, and set aside acts that are contrary to established policy and regulations of the University or the Committee. It is granted the power to approve or disapprove the establishment of any proposed organization or society. No student club or society (except social fraternities, societies, scholarly or literary societies, religious or professional clubs or societies) organized as a non-George Washington University organization will be recognized or affiliated by the Committee on Student Life.

ELIGIBILITY FOR STUDENT ACTIVITIES

Any student registered in The George Washington University is eligible to participate in nonathletic student activities of the University; however, a student having a cumulative average of less than 2.00 is not eligible to join.

A member of the Band, Dance Production groups, Knickerbocker Debating Society, Chess Club, Chessboarders, Student Council, Religious Council, Panhellenic Council, Interfraternity Council, Engineers' Council, Residence Hall Councils, Student Life Committee, or any publications staff.

An officer, permanent committee chairman, or member of the executive board of any activity.

The control and administration of all student activities are outlined in a separate manual.

SPORTS ACTIVITIES

The University is a member of the Southern Conference and the National Collegiate Athletic Association. Its teams participate in intercollegiate contests in football, basketball, baseball, tennis, golf, rifle, sailing, and crew.

The University maintains a complete program of intramural sports for both men and women. The men's program is conducted by the Intramural Council. The Women's Athletic Association and Interscholastic Athletic Board cooperate with the department of Physical Education in conducting the women's intramural and informal extramural sports program in tennis, hockey, basketball, rifle, swimming, golf, bowling, and badminton.

PERFORMING ARTS

Students may participate in dance, drama, forensics, and music through the following organizations: Dance Production Groups I, II, III (Modern Dance) and Folk Dance; Euclidian Debating Society; Folk Singers Club; University Players; University Glee Club and University Orchestra. Each of these groups presents programs during the academic year.

With the cooperation of the Curator of Art, an annual student art exhibit is presented.

ANNUAL EVENTS

Colonial Program.—The Student Council sponsors a variety of programs to which all students are invited.

Recreation Program.—The Student Council and the Dance Production Groups arrange dances—square, folk, and social—at frequent intervals for all students.

Concert Program.—The Student Council sponsors a concert each semester at which well known entertainers perform.

Orchestra Series.—The University Orchestra offers a series of concerts throughout the academic year.

Homecoming.—Scheduled about the middle of the fall semester, Homecoming is the primary festive period of the school year. It includes the annual Pep Rally and homecoming show, the homecoming football game, and the homecoming dance.

Religion in Life Program.—Special emphasis is given to the place of religion in contemporary society in this program of events during the fall and spring semesters. It is sponsored by the University Chapel.

Holiday Season.—The University traditionally greets the holiday season with appropriate ceremonies including the lighting of the Christmas tree, the singing of Handel's Messiah, and the observance of a special Christmas service at the University Chapel.

May Day.—This is the traditional time for the award of honors in student activities. Mortar Board and Omicron Delta Kappa announce and present their new members.

STUDENT ORGANIZATIONS

HONOR SOCIETIES

- Arnold Air Society.**—A national Air Force ROTC society for advanced cadets.
Delphi.—An interfraternity society.
Delta Sigma Rho.—A national forensic society.
Gate and Key.—An intrafraternity society.
Mariner Board.—A national society for senior college women, stressing leadership, scholarship, and service.
Omicron Delta Kappa.—A national fraternity emphasizing leadership in extracurricular activities.
Order of Scarlet.—A service honorary society for sophomore and junior men.
Pershing Rifles.—A national Air Force ROTC society for basic cadets.
Psi Sigma Tau.—A national philosophy honor society.
Pi Epsilon Delta.—A national drama honorary fraternity.
Pi Gamma Mu.—A national social-science society.
Psi Chi.—A national psychology fraternity.

PROFESSIONAL ORGANIZATIONS AND DEPARTMENTAL CLUBS

Alpha Kappa Psi (commerce and economics), Association for Hospital Administration, El Club Español, Croatian Debating Society, Le Cercle Français, Lester F. Ward Sociological Society, Phi Delta Gamma (graduate), Phi Sigma Tau (philosophy), Russian Club, Sigma Delta Pi (Spanish), Society for the Advancement of Management (student chapter).

OTHER ORGANIZATIONS

Alpha Theta Nu (scholarship winners), Big Sisters, Overlanders, Chess Club, Central Boosters, Cultural Foundation, Forty Bottom Sports Car Club, Interfraternity Council, International Relations Club, International Students' Society, Intercollegiate Athletic Board, Junior Panhellenic Association, Old Men, Residence Hall Councils, Rifle Club, Senior Panhellenic Association, Student WHGW, Student Commission, University Pep Band, Wandering Greeks, Young Democrats Club, Young Republican Club.

SOCIAL FRATERNITIES

Sigma Chi, Kappa Sigma, Phi Sigma Kappa, Sigma Alpha Epsilon, Sigma Phi Epsilon, Phi Sigma Delta, Sigma Nu, Tau Kappa Epsilon, Pi Kappa Alpha, Tau Gamma Phi, Alpha Epsilon Pi, Delta Tau Delta.

SOCIAL SORORITIES

Pi Beta Phi, Chi Omega, Sigma Kappa, Alpha Delta Pi, Delta Zeta, Kappa Delta, Phi Sigma Sigma, Zeta Tau Alpha, Kappa Kappa Gamma, Delta Gamma, Kappa Theta, Alpha Epsilon Phi, Sigma Delta Tau.

STUDENT PUBLICATIONS

The Cherry Tree (the annual), *The University Hatchet* (weekly newspaper), *The Potomac* (literary magazine), *The Student Handbook*.

RELIGIOUS LIFE

The University recognizes the contribution that religion makes to the life of its students and encourages them to participate in the various religious organizations of their own choice. Catholic, Jewish, and Protestant bodies sponsor these groups and form a link between the University and the religious community. The advisers of the religious organizations are available for counseling.

UNIVERSITY CHAPEL

The University Chapel is maintained as a nonsectarian service of worship for the University community. The service is held Wednesday of each week from 12:10 to 12:30 o'clock at 1906 H Street NW. Among the guest speakers are representative clergymen of Washington. The Director of University Chapel is available for consulting and conference.

RELIGIOUS ORGANIZATIONS

Baptist Student Union, B'nai B'rith Hillel Foundation, Canterbury Association, Christian Science Organization, Eastern Orthodox Club, Lutheran Student Association, Newman Club, Student Christian Fellowship, Unitarian Club, United Christian Fellowship, Wesley Foundation, and a religious Council comprised of representatives of all religious organizations.

Courses of Instruction

On the following pages of this CATALOGUE, under the alphabetically arranged names of the departments of instruction, is a partial listing of the courses of instruction offered by the University in the summer of 1964 and in the academic year 1964-65. The courses as here listed are subject to some slight change. The University reserves the right to withdraw any course announced.

HOURS OF INSTRUCTION

Courses are scheduled in the morning, afternoon, and evening. Evening and day-time sections of the same course are identical, are taught by the same staff of instructors, and carry the same amount of credit. By taking the evening and summer courses and extending the time of study, a part-time student may complete the requirements and obtain a degree.

EXPLANATION OF COURSE NUMBERS

First-group courses.—Courses numbered from 1 to 100 are planned for students in the freshman and sophomore years. With the approval of the adviser and the Dean, they may also be taken by juniors and seniors. In certain instances, they may be taken by graduate students to make up undergraduate deficiencies or as prerequisite to advanced courses, but they may not be credited toward a higher degree.

Second-group courses.—Courses numbered from 101 to 200 are planned for students in the junior and senior years. They may be credited toward higher degrees only when registration for graduate credit has been approved at the beginning of the course by the dean responsible for the graduate work and by the instructor, and when the completion of additional work has been certified by the instructor.

Third-group courses.—Courses numbered from 201 to 300 are planned primarily for graduate students. They are open, with the approval of the instructor to qualified seniors; they are not open to other undergraduates.

INDICATION OF THE AMOUNT OF CREDIT

The number of semester hours of credit given for the satisfactory completion of a course is, in most cases, indicated in parentheses after the name of the course. Thus, a four-course giving 3 hours of credit each semester is marked (3-3), and a semester course giving 3 hours of credit is marked (3). A semester hour usually consists of the completion of one fifty-minute period of class work or of one laboratory period a week for one semester.

Government and Business

ACCOUNTING

FIRST GROUP

12 Introductory Accounting (3-3)

First half: basic principles underlying accounting records, preparation of the work sheet and financial statements, accounting for single proprietorships and partnerships. *Second half:* accounting for corporations and introduction to cost accounting, analysis of financial statements, and valuation and amortization problems. Prerequisite to Accounting 2; Accounting 1 or permission of the instructor. (First half—fall and spring—day and evening; summer 1964. Second half—fall and spring—day and evening; summer 1964.)

The Staff

SECOND GROUP

101 Cost Accounting (3)

Theory and purposes of industrial cost accounting; treatment of systems of cost control and interpretation; analysis and interpretation of cost data; job, process, and standard cost systems. Prerequisite: Accounting 1-2. (Fall—day and evening; spring—day; summer 1964.)

Coughlan

111 Financial Statement Analysis (3)

Methods and techniques of preparing, analyzing, and interpreting financial statements for the guidance of operating executives, directors, stockholders, and creditors; valuation of price level changes on accounting data; determination and interpretation of trends and ratios. Prerequisite: Accounting 1-2 or permission of the instructor. (Fall—day; spring—evening; summer 1964.)

Kennedy, Steele

115 Survey of Accounting (3)

An introduction to the basic principles underlying financial statements and financial records with emphasis on the use of accounting information in the management process. Study of theory, terminology, cost accounting, and interpretation of financial data. Not open for credit to Accounting or Business Administration majors. (Fall and spring—evening; summer 1964.)

Coughlan, Gallagher

121-22 Intermediate Accounting (3-3)

First half: valuation and amortization problems of current assets, long-term investments, tangible fixed assets, intangible assets, and deferred charges; accounting for current, noncurrent, contingent, and estimated liabilities. Prerequisite to 121: Accounting 2 or permission of the instructor. *Second half:* accounting for the organization, financing, operation, and dissolution of corporations and partnerships; basic principles of consolidation and installment sales. Prerequisite to 122: Accounting 121 or permission of the instructor. (Academic year—day and evening.)

Kurtz, Simpson

132 Accounting Theory (3)

Development of basic accounting principles and concepts with a review of some of the major contributions to accounting literature and with special reference to current thought as reflected in the pronouncements of the American Institute of Certified Public Accountants and the American Accounting Association. Prerequisite: 6 hours of accounting. (Spring—day; summer 1964.)

Kennedy

141 Governmental Accounting (3)

Problems relating to governmental appropriation accounts, encumbrances, and fund accounting. Emphasis on municipal and state government accounting with an intro-

Lewis

duction to federal accounting. Prerequisite: Accounting 1-2 or permission of the instructor. (Fall—evening.)

144 Federal Accounting (3)

Lewis

Accounting procedures in the Federal Government, with emphasis on agency level accounts, implementation of accrued expenditure legislation, and accounting support for cost-based budgets. Accounts of United States Treasury; current concepts of allotment, obligation, and disbursement accounting and reporting. Prerequisite: Accounting 141 or permission of the instructor. (Spring—evening.)

146 Income Tax Accounting (3)

Gallagher

Problems involved in the federal income taxation of individuals and corporations, differences between tax accounting and financial accounting, social security taxes. Prerequisite: Accounting 1-2. (Fall—day and evening.)

162 Federal Tax Practice (3)

Gallagher

Advanced problems of federal tax practice such as the tax treatment of partnerships, estates, trusts, corporate reorganizations, foreign income, and gifts; use of the tax services; assessment, collection, and refund procedures. Prerequisite: Accounting 161 or the permission of the instructor. (Spring—evening.)

171 Auditing (3)

Kortz

Duties and responsibilities of auditors; principles and procedures of making audits; techniques of verifying cash, financial statement items, preparation of audit working papers and reports. Prerequisite: Accounting 171-22. (Fall—evening, summer 1964.)

172 Auditing Practice (3)

Kortz

A critical study of the standards of audit reporting; an advanced study of certain auditing procedural problems; and a study of current auditing topics to include the application of statistical sampling techniques to auditing, auditing electronic systems, and management advisory services. Prerequisite: Accounting 171 or permission of the instructor. (Spring—evening.)

181 Accounting Systems (3)

Lewis

Theory and procedure of designing and installing accounting systems for collecting, recording, analyzing, and presenting accounting data. Prerequisite: Accounting 101, 121-24, and 171, or permission of the instructor. (Fall—evening.)

191 Advanced Accounting (3)

Coughlan, Steele

Consolidated statements, statement of affairs, realization and liquidation reports, and other and trust accounting. Prerequisite: Accounting 121-22. (Fall—evening; summer 1964.)

193 Business Budgeting (3)

Lewis, Buckler

Principles, techniques, and procedures involved in the development, installation, and operation of a system of budgetary control to aid in the management of commercial and industrial organizations. Prerequisite: Accounting 1-2. (Fall—day; spring—day and evening; summer 1964.)

196 Management Decisions and Accounting (3)

Coughlan, Lewis

An analysis of the information required by management in making capital budgeting, inventory management, and other decisions, and an investigation of the past and prospective ability of the accountant to provide that information. Consideration will be given to the cash flow and probability data needed by modern management and to advanced cost accounting systems. Prerequisite: Accounting 1-2. (Spring—evening.)

198 Professional Accounting Review (3)

Lewis

Review and coordination of the principles and techniques developed in the accounting curriculum, in preparation for general practice in the field of accountancy and for professional accounting examinations. Prerequisite: Accounting 101, 143, 162, 171, and 191, or permission of the instructor. (Spring—evening.)

THIRD GROUP

211-12 *Managerial Accounting* (3-3)

Kennedy, Higginbotham

First half: analysis of the accounting system with special reference to the use of financial and operating records and accounting reports as tools of management; a study of various cost accounting problems including the influence of price level changes on accounting data. Prerequisite: Accounting I.2 or 11b. *Second half:* a survey of internal accounting controls, comparative budgets, and cost accounting systems used by management in planning and controlling a business. Prerequisite: Accounting I.2. Accounting III or permission of the instructor. (*First half:* not offered 1964-65; *Second half:* summer 1964.)

215 *Survey of Managerial Accounting* (3)

Coughlan, Buckler

Notation, preparation, analysis, and interpretation of accounting reports; study of cost accounting, budgeting, forecasting, and internal accounting controls with emphasis on their use in the management process. Prerequisite: Accounting I.2 or 11b or permission of the instructor. Not available for credit to students taking accounting 211-12. (Fall and spring—evening.)

231 *Contemporary Accounting Theory* (3)

Kurtz, Higginbotham

Advanced accounting principles and concepts and recent theories connected with the valuation and determination of assets and determination of income. Admission by permission of the instructor. (Not offered 1964-65.)

241 *Accounting and Related Disciplines* (3)

Coughlan

A study of the relationships between accounting and such related disciplines as economics, statistics, theory, and operations, primarily with emphasis on what the accounting discipline has to offer to those fields related to the new ideas and new requirements which these fields may offer to or impose upon accounting. Prerequisite: permission of the instructor. (Fall—evening.)

246 *Governmental Accounting and Budgeting Problems* (3)

Lewis

Accounting principles and practices as related to accounting relationship to general policy and administration. Prerequisite: Accounting I.4 or permission of the instructor. (Not offered 1964-65.)

275 *Internal Control and Auditing* (3)

Coughlan, Kurtz

Internal accounting controls; review and appraisal of accounting systems, procedures, and management problems with respect to their efficiency and profitability. Emphasis on the use of internal control and auditing as an aid to management. Prerequisite: Accounting III or permission of the instructor. (Summer 1964.)

295-96 *Seminar in Accounting* (3-3)

Kennedy

Selected accounting practical topics and problems; individual oral and written reports. Admission by permission of the instructor. (A one-semester year—evening.)

297-98 *Accounting Reading and Research* (3-3)

The Staff

(Available year—as arranged.)

299-300 *Thesis* (3-3)

The Staff

(Available year—as arranged, summer 1964.)

COURSES OFFERED IN SPECIAL PROGRAMS

In addition to the regular courses announced above, the University offers the accounting courses listed below for students enrolled in the following special programs: Navy Graduate Financial Management Program, Air Force Advanced Management Program, and Engineering Administration.

3 *General Accounting* (3) (Summer 1964)278 *Survey of Internal Control and Auditing* (3)293 *Budget Preparation and Administration* (3)

BUSINESS AND PUBLIC ADMINISTRATION

THIRD GROUP

- 201 *Advanced Administrative Management* (3) Eastin, Ericson
An advanced course in administration emphasizing principles and practices common to administrative units of all kinds. (Fall—day and evening; spring—evening; summer 1964.)
- 204 *Quantitative Factors in Administration* (3) Tosini
Developments in quantitative methods of administration. (Fall and spring—evening.)
- 205 *Seminar: Communication and Executive Action* (3) Morrow
Seminar in the communicative process. Research and analysis, identification of factors relating to receptivity, the dynamics of communication. (Spring—evening.)
- 206 *Personnel Management* (3) Torrey
Basic principles; structure and organization of personnel offices; responsibilities; personnel relationships; personnel staffing, training, and work measurement. (Fall—evening; summer 1964.)
- 207 8 *Human Factors in Administration* (3-3) Eastin, Ericson, Pollock
Individual, group, individual, and other human behavior and development; application of social science research to administration. Practical applications will be emphasized. (Academic year—evening; summer 1964.)
- 262 *Contemporary Administrative Theory and Practice* (3) Ericson
Current theories and trends in management with particular emphasis on the behavioral sciences, communications and applicability of research. (Spring—evening; summer 1964.)
- 263 *Management Engineering* (3) Clewlow
Analysis of the techniques for initiation and implementation of management engineering programs, with emphasis on organization and methods surveys including the study of work measurement, work simplification, management audits, and other management improvement programs. (Fall and spring—evening.)
- 269 *Management and Information Systems* (3) Page
A survey course: the collection and processing of management information, management engineering, work simplification, development of methods, procedures, and systems; systems analysis. Primarily for graduate students in Health Care Administration. (Spring—day and evening.)
- 267 *Relation of Government to Forestry* (3) Cloutier
Activities of government in their relation to business management in such areas as labor relations, wages, production, and prices. Trends and changes in economic activity and its bearing upon government policy. (Spring—evening.)

COURSES OFFERED IN SPECIAL PROGRAMS

In addition to the regular courses announced above, the University offers the following business and public administration courses for students enrolled in the Navy Graduate Financial Management Program and the Air Force Advanced Management Program.

- 206 *Personnel Management* (3)
- 207 8 *Human Factors in Administration* (3-3)
- 263 *Management Engineering* (3) (Summer 1964)

BUSINESS ADMINISTRATION

SECOND GROUP

- 101 *Introduction to Business* (3)
The business environment; its effects upon the decision making process.
(day and evening; spring—day.) **Conner**
(Fall—)
- 102 *Fundamentals of Management* (3)
Planning, organizing, directing, coordinating, and controlling the activities of the administrative unit; evolution of management thinking. (Fall and spring—day and evening; summer 1964.) **Eriksen, Conner**
- 105 *Personnel Management* (3)
Industrial personnel and manpower programs, organizations and policy in personnel activities. (Fall—day; spring—evening; summer 1964.) **Eastin, Stoncifer**
- 106 *Problems in Personnel Management* (3)
Principles of manpower management illustrated by cases drawn from business, industry, and government. Prerequisite: Business Administration 105. (Spring—evening.) **Eastin, Stoncifer**
- 107 *Labor-Management Contracts* (3)
Management's role in the negotiation and administration of collective bargaining agreements, as essential to development of good labor-management relations. (Not offered 1964-65.) **Sommers**
- 109 *Office Management* (3)
Organization and layout of an office, use of office machines and appliances, planning and execution of work, supervision problems. (Fall and spring—evening.) **Doubleday**
- 113 *Real Estate* (3)
Fundamentals of real estate practice; leasing and property management; valuation, financing, and taxation. (Fall—evening.) **Doubleday**
- 121 *Risk Management* (3)
A general course in underlying principles of property, life, marine, and casualty insurance, and the function of insurance in the economic life of a business or individual. (Spring—evening.) **Doubleday**
- 122 *Life Insurance and Estate Planning* (3)
Life insurance contracts, their use in providing protection and estate development. (Spring—evening.) **Campbell**
- 131 *Business Finance* (3)
Basic principles involved in the financing of business enterprises. Prerequisite: Accounting 1-2. (Fall—day; spring—day and evening; summer 1964.) **Page, Roman**
- 136 *Credit Management* (3)
Types and sources of credit information, credit relationships from the standpoint of the commercial bank and the commercial business enterprise. Prerequisite: Accounting 1-2. (Spring—evening.) **Page, Roman**
- 138 *Investments* (3)
Analysis of factors of investment credit with application to different types of investments, proper selection of investments for various classes of investors, regulation. Prerequisite: Accounting 1-2, Business Administration 131. (Spring—evening.) **Dockeray, Shaffner**
- 141 *Basic Marketing Management* (3)
An introduction to marketing and marketing management in relation to our total economy and business management, consumer and demand analysis, retailing, wholesaling, major marketing management problems and policies with particular emphasis on major decision areas and tools. Prerequisite: Economics 1-2. (Fall—evening; spring—day; summer 1964.) **Walters**

142 *Marketing Management Problems* (3)

Practical problems of retailers, wholesalers, and manufacturers considered through the use of cases and text material; fundamental considerations in marketing decisions and the nature of the problem-solving process. Prerequisite: Business Administration 141. (Not offered 1964-65.)

143 *Marketing Research* (3)

Principles and practices of marketing research with particular emphasis upon basic methods and techniques, sources and interpretation of data, and presentation of results. (Fall-evening.)

145 *Sales Management* (3)

Organization of the sales department, sales planning and forecasting, quotas, territories, performance standards, and analysis and control of distribution costs. Prerequisite: Business Administration 141. (Not offered 1964-65.)

147 *Advertising* (3)

Advertising as a function of marketing and merchandising; uses and limitations of advertising as a tool of management; fundamentals involved in getting a limited advertisement before potential customers; evaluation, criticism, and control of advertising. (Fall-evening.)

150 *Procurement and Materials Management* (3)

Purchasing organization, procedures, and policies; market relationships; selection of materials and sources of supply; procurement information and records; evaluation of procurement practices in industry and government. (Spring-evening.)

153 *Traffic Management* (3)

Organization and records of traffic department; routing of shipments; services by carriers; rates and charges; relation of shipper to transportation agencies. (Spring-evening.)

161 *Commercial Law: Contracts, Sales, Agency, and Bailments* (3)

(Fall-day and evening; summer 1964.)

Collins, McClure

162 *Commercial Law: Negotiable Instruments, Property, Mortgages* (3)

(Spring-day and evening; summer 1964.)

Collins, Murphy

163 *Law in Relation to the Form of Business Units: Corporations, Partnerships, and Trusts* (3)

(Fall-evening.)

Murphy

171 *Principles of Transportation* (3)

Impact of transport on society; development; economic characteristics; services; rates; and regulation of the various modes of domestic interstate transportation. (Fall-evening.)

Roman

172 *Public Utilities* (3)

Legal and economic meaning of the public utility concept; development; services; economic characteristics; rate-making and regulation of the various utility industries, with particular emphasis on electric, gas, telephone, and urban transit industries. (Spring-evening.)

Roman

173 *Commercial Motor Transportation* (3)

Organization, management, services, economic characteristics, rates and regulation of motor transport firms; highways and highway financing considered from the point of view of both producers and users of the services. (Fall-evening.)

Roman

174 *Commercial Air Transportation* (3)

Organization, management, services, economic characteristics, rates, and regulation of air transport firms; policies and activities of the government in the development, promotion, and control of air transport. (Spring-evening.)

Roman

175 Introduction to Foreign Trade (3)

Terminology, trade usages and practices, conditions essential to successful trading, economic basis of international trade, obstacles to trade, tariffs, impact of governmental controls on private trade. Prerequisite: Economics 1-2. (Fall—evening.)

Kaye

176 Exporting and Importing (3)

Policy and operating problems of foreign trade, financing, documentation, packing and transportation of shipments, ocean marine insurance, and U. S. Customs procedure and formalities. (Not offered 1964-65.)

Kaye

178 International Business Operations (3)

Analysis of overseas projects according to purpose and type of operation; case studies involving development and management of overseas marketing programs and other operations in different areas of the world. (Spring—evening.)

Ogdon

181 Manufacturing Production (3)

Basic principles and methods of manufacturing production. Manufacturing facilities, plant and equipment. Illustrations selected from various process and fabrication industries. (Spring—evening.)

Page

191 Business Reports and Analyses (3)

Sources of management information, array and analysis of data, interpretation and presentation of the findings. (Not offered 1964-65.)

J. Brown

193 Management Communication (3)

A survey course in the problems of communication; written communication; style and format; oral communication; oral teaching and presentation; group leadership; rapid writing; computer-aided work; and related subjects. (Fall—evening; spring—day.)

Eastin, J. Brown

195 Controllership (3)

The duties, responsibilities, and place of the controller in a business organization, relations of controller to other departments and regulatory bodies; and the controller's relation to cost setting and inventory, depreciation policies, internal auditing, expense control and budgeting, and financial reports to management, stockholders, and employees. Prerequisite: Accounting 1-2. Open to seniors. (Fall—evening.)

Eastin, Page

198 Case Problems in Management (3)

Principles and techniques of management illustrated by cases drawn from business and industry. Prerequisite: Business Administration 102, 105, 131, 141. (Fall and spring—day and evening.)

(Fall and

THIRD GROUP**209 Seminar: Personnel Management (3)**

Discussion of industrial personnel and manpower management, and research in advanced problems. (Fall—evening.)

Eastin

210 The Personnel Manager (3)

The job of the personnel manager and his place in the organization; relations of the personnel manager to other executives; the personnel manager's policy role, and his relations with the chief executive. Key problems of the senior personnel executive. (Spring—evening.)

Jessup

211 Personnel Management and Industrial Relations (3)

A survey of personnel management practices and procedures, including labor-management relations. (Fall—day.)

Tosini, Daly

213 Survey of Data Processing (3)

A survey of modern data processing systems with emphasis on the management problems associated with the installation and use of such systems. (Fall and spring—evening.)

Schwartz

219 Digital Computer Programming Concepts (3)

Machine functions and programmed control, instructions and programs, sub-routines.

- general purpose programming, business oriented programming languages. Prerequisite: Business and Public Administration 204 or permission of instructor. (Fall—evening.)
- 20 *Comparative Digital Computer Systems* (3) Schwartz
Properties and capabilities of the range of equipments in use today, special purpose business equipments, recent and prospective equipment developments. Prerequisite: Business Administration 219. (Spring—evening.)
- 21 *Application of Digital Computers* (3) Alexander
The integration of data processing in the regular operations of the business or government organization and its establishing flow of management information, systems planning, the impact of Automatic Data Processing on management organization and decision making. Prerequisite: Business and Public Administration 204 and Business Administration 220. (Fall—evening.)
- 22 *Seminar: Advanced Digital Computer Concepts* (3) Alexander
Study of advanced problems in the design and application of computer systems. (Spring—evening.)
- 23 *Linear Programming* (3) Bracken
Introduction to the vocabulary and methodology of management science through the study of linear programming techniques. Case studies. Prerequisite: Business and Public Administration 204. (Fall—evening.)
- 24 *Introduction to Operations Research for Management* (3) Bracken
Operations research as an approach to the solution of management problems. Emphasis on the objectives and limitations of operations research. Practical applications are included. Prerequisite: Business and Public Administration 204. (Spring—evening.)
- 25 *Corporate Financial Problems* (3) Dockeray, Houston
Financial practice in promotion, evaluation, and merger; capital structure, investment, and reorganization. (Fall—evening.)
- 26 *Seminar: Business Finance* (3) Dockeray, Houston
Research in advanced financial problems. (Spring—evening; summer 1964.)
- 27 *Investment Analysis* (3) Dockeray, Shaffner
An advanced course in the application of investment principles and analytical techniques to the selection of investments. Prerequisite: Business Administration 136. (Fall—evening.)
- 28 *Seminar: Investments* (3) Dockeray, Shaffner
Research in investment problems, techniques of selection and the management of portfolios of funds. Prerequisite: Business Administration 136. (Not offered 1964-65.)
- 29 *Advanced Marketing Management* (3) Walters
Marketing management problems and policies in major marketing areas of product, pricing, channels of distribution, advertising, personal selling, sales promotion, public relations and development of integrated marketing programs. Marketing research and other useful in decision making. Case analysis. (Fall—evening, summer 1964.)
- 30 *Seminar: Marketing Theory* (3) Walters
Critical review of the development of marketing thought and important marketing literature. Special and current problems and/or trends in marketing and their impact on the firm and society. Prerequisite: Business Administration 204. (Spring—evening.)
- 31 *Advanced Marketing Research* (3)
Marketing research as an aid to decision making and increased efficiency in marketing. Marketing research process, critical appraisal of methods and results, evaluation of marketing research. Cases, selected readings, and research project. Prerequisite: a course in basic statistics. (Spring—evening.)

- 247 Advertising Management (3)** Walters
Case studies and text material dealing with executive determination of advertising organization, basic strategy relative to marketing program, promotional program, advertising administration, preparation and scheduling of advertisements, media selection, and determination of effectiveness. Advertising research and economic and social aspects. (Fall—evening)
- 248 International Marketing (3)** Walters
Organization for international marketing, foreign demand analysis, product development and policies, marketing structure and trade channels, advertising and promotion problems and policies, pricing, credits and collections, and legal aspects. Particular emphasis on development of effective international marketing strategy. (Spring—morning)
- 250 Contract Administration (3)** McKenna
The management of government contracts with private suppliers. (Fall—evening)
- 251 Retail Management (3)**
Managerial problems and policies concerning financing, location, organization structure, merchandise policies, advertising and sales promotion, personnel management, operating and service policies, accounting and control, and other related retail management problems. Case analysis. (Not offered 1964-65)
- 255-56 Seminar: Foreign Trade (3)** Osdon
Research, analysis, and discussion of foreign trade institutions, public and private. (A whole year—evening)
- 273-74 Readings in Business (3-3)** The Staff
Advanced readings in the fields of finance, marketing, and personnel management. Assigned by permission of the instructor. (Academic year—evening)
- 286 Management in the Armed Forces (3)** Jessup
Special problems of military organization and management; applicability of business management techniques to the armed forces. (Not offered 1964-65)
- 288 Executive Leadership (3)** Krieger
Examination of principles and problems of executive leadership and development; intensive consideration of basic issues and guides to executive action in business and public administration; review of the literature, significant research findings, and practical illustrations. (Fall—evening)
- 291 Seminar: Business Management (3)** Eriksen
Research on various phases of management as practiced in American industry. (Fall and spring—evening; summer 1964.)
- 293-94 Business Research (3-3)** The Staff
(Not offered 1964-65)
- 296 Seminar: Financial Management (3)** Stromsen
Research on advanced problems of financial analysis and management. (Spring—evening)
- 297 Case Studies in Business Administration (3)** Jessup
Problems of management are analyzed with the view of developing a practical solution; cases are used to show the problems of personnel in marketing, industrial management, finance, etc. (Fall and spring—evening)
- 299 Thesis Seminar (3)** Dockeray and Staff
An examination of thesis standards, research philosophy, and methodology. (Fall and spring—evening; summer 1964.)
- 300 Thesis (3)** The Staff
(Fall and spring—as arranged; summer 1964.)

COURSES OFFERED IN SPECIAL PROGRAMS

In addition to the regular courses announced above, the University offers the following business administration courses for students enrolled in the following special programs: Navy Graduate Financial Management Program, Air Force Advanced Management Program, and Engineering Administration.

- 107 Labor-Management Contracts (3) (Summer 1964)
- 235 Financial Management (3)
- 253 Procurement and Distribution (3)
- 263-64 Business Organization and Management (3-3)
- 269 Readings and Conferences in Controllorship (2 or 3) (Summer 1964)
- 284 Readings and Conferences in Management (2)
- 290 Research Seminar in Management (3)
- 295 Research Seminar in Controllorship (3)

HEALTH CARE ADMINISTRATION

- 153-54 Survey of Health Care Organization and Procedures (1-3) Gintzig
(Formerly Health Care Administration (50-51))
Lectures and discussions. (May be audited.) Primarily for students in Continuing Education in Health Care and related fields or medical care organizations who wish an overall knowledge of organization and procedures used in hospitals, long term care facilities such as nursing homes, and homes for the aged. This is a two semester sequence. (Not open to degree candidates in Health Care Administration.) Students wishing to take the course for graduate credit must take the Health Care Administration 203 laboratory. (Academic year-evening.)
- 202 Introduction to Health Care Administration (3) Griffiths
Lecture and discussion (2 hours), laboratory (1 hour). Survey of community health services, public health organizations, voluntary agencies, and private practitioners (with attention to state and national health resources); medical terminology; communicable diseases, environmental sanitation, and biostatistics. (Fall-day and evening.)
- 203 Organization and Management (3) Gintzig
Lecture and discussion (2 hours), laboratory (2 hours). The history and current character of institutional health care. Organizational functions and structure of various kinds of hospitals and clinics, including long-term care facilities such as mental hospitals, homes for the aged, nursing homes, and others related to health care administration. (Fall-day and evening.)
- 204 Health Care Administration Planning and Support Agencies The Staff
and Associations (3)
(Formerly, Organization and Management II)
The functions performed and special support techniques of hospital, medical, public health, nursing home, planning, educational and similar associations. (Fall or spring as arranged.)
- 205 Hospital Management Procedures (3) Letourneau, Foster,
Schaffer, Gavazzi
Lecture and discussion (2 hours), laboratory (1 hour). A survey of hospital law; a study of hospital forms, procedures, and systems; hospital programs pertaining to disaster relief, safety, fire prevention; personnel purchasing, and relations services; and the operational peculiarities of hospital departments. (Fall as arranged; spring-day and evening.)

- 206 Case Studies in Health Care Administration (3)** Gibbs
 Discussion (2 hours), laboratory (2 hours). General ideas about administration as applied to practical cases. Emphasis on policy making, planning, controlling, and organizing in hospitals. It includes case applications of Health Care Administration I and II. Prerequisite: Business and Public Administration 201 and Health Care Administration 203. (Spring—day and evening.)
- 207 Management Analysis in Health Care Institutions (3)** Gintzig
 Lecture (2 hours), laboratory (2 hours). Management Engineering, data processing and other methods of collecting, analyzing, reporting, and using information that can be made available to administrators of hospitals and other medical care institutions. Part of this time is devoted to an investigation on which written and oral reports are based. (Spring—as arranged.)
- 209 Health Care Economics (3)** Camp
 Lecture (2 hours), laboratory (2 hours). Medical economics including sources of hospital income; fund raising drives; methods of procuring, using, budgeting, and accounting for hospital funds; prepayment plans, impact on community of the cost of medical care. (Spring—day and evening.)
- 212 Planning and Constructing Health Care Facilities (3)** Griffiths
 Lecture (2 hours), laboratory (2 hours). Regional and specific aspects of long and short-term health care planning, designing, constructing, purchasing, equipping, and supply. Prerequisites: Health Care Administration 201 and 203. (Spring—day and evening.)
- 213 Administration of Health Care Systems (3)** The Staff
 The various patterns of hospital and health care such as church ownership, proprietary, group practice, Salvation Army, governmental, industrial, unions, nursing homes, community, and their special characteristics. (Fall or Spring—as arranged.)
- 221-22 Fundamentals of Medical Science and Medical Terminology (3-3)** Quandt*
 A study of the fundamentals of medical science and medical essentials presented through lectures in the medical specialties. Includes a study of terms related to all areas of medical science, hospital service, and the paramedical specialties. (Academic year—day and evening.)
- 223-24 Introduction to Health Records Administration (3-3)** Quandt*
 Lecture and discussion (2 hours), laboratory (2 hours). History of medical records, report preparation, coding and indexing procedures, ethics, methods of securing and processing medical records, and medical record practices and procedures in areas such as radiology, pathology, outpatient department, and social services. (Academic year—day and evening.)
- 225-26 Principles of Health Records and Problems in Medical Records Administration (3-3)** The Staff
 Lecture and discussion (2 hours), laboratory (2 hours). Research techniques and qualitative analysis pertaining to medical records. Ethics involved in handling records. Problems encountered in medical record departments in hospitals, clinics, and other essentially medical facilities. (Academic year—day and evening.)
- 229 Health Records Administration Internship (3)** The Staff
 Four-month internship beginning in June of each year, in approved medical facilities under qualified medical records administrators. A final written report of a major work project, assignments for directed practical experience and practice in the use of standard equipment found in medical records departments. (Not offered 1964-65.)
- 250 Administration for Mental Care (3)** The Staff
 Special characteristics of administration required in mental hospitals, psychiatric sections of general hospitals, and others. (As arranged.)

- 260 *Administration for Long-term Care Facilities* (3) The Staff
A survey of the medical and nursing procedures designed for administrators of long-term care facilities including nursing homes and facilities for the aged. (Fall—evening.)
- 261 *Business Procedures for Long-term Care Facilities* (3) Capusan*
Business procedures with special application to administration of facilities for long-term care including nursing homes and homes for the aged. (Spring—evening.)
- 265-66 *Readings in Long-term Care Administration* (3-3) The Staff
(Formerly Health Care Administration 262-63)
Advanced studies in selected aspects of administration of long-term care facilities, including nursing homes, homes for the aged, and others. (As arranged.)
- 267 *Social Gerontology for the Administrator* (3) Tibbitts
The special characteristics of the elderly with which administrators of long-term care facilities should be acquainted. (Fall—evening.)
- 270 *Research in Health Care Administration* (3) The Staff
Field research in health care administration. Student investigates some phase of health care administration. Primarily for doctoral candidates. Open to other graduate students with the consent of the instructor. (Fall or spring—as arranged; summer 1964.)
- 285-86 *Readings in Health Care Administration* (3-3) The Staff
Supervised readings in some special areas or subdivisions of health care administration. Primarily for doctoral candidates. Open to other graduate students with consent of the instructor. (Academic year—as arranged; summer 1964.)
- 287 *Seminar: Integration of Health Care Administration* (3) The Staff
Primarily for doctoral candidates. (Fall or spring—as arranged.)
- 288 *Seminar: Field Problem Studies in Health Care Administration* (3) The Staff
Selected administrative issues and problems arising in health care facility situations are discussed and evaluated. (Fall or spring—as arranged.)
- 293-94-95 *Residency I* (3-3-3) Camp, Gibbs
Twelve-month residency, beginning each year June 1 or July 1. Work experience under a qualified preceptor, periodic seminars with the University staff, periodic written progress reports, and a written major report. (Other courses may be substituted for Health Care Administration 294-95 as appropriate.)
- 296-97-98 *Residency II* (3-3-3) Gibbs
For selected students who take a second twelve-month residency.
- 299-300 *Thesis* (3-3) The Staff

PUBLIC ADMINISTRATION

THIRD GROUP

- 211 *Problems of Governmental Organizations* (3) The Staff
Analysis of the application of organizational theories and practices to government agencies, with particular emphasis on internal organization and control. Special problem areas are examined, such as de-centralization, staff line and field headquarters relations, groups, and the role of committees. (Fall—evening; summer 1964.)

* Appointment effective September 1964.

- 213 *Administration in Government* (3) D. Brown, Cloutier
A critical analysis of federal administrative organizations, their achievements and pathologies. The roles of Congress, the Presidency, the Courts, interest groups, political parties, and the public in the administrative process are studied with special attention to centripetal and centrifugal forces at work. (Fall—evening; spring—day.)
- 215 *Comparative Administrative Systems* (3)
Examination and analysis of the administrative systems of the major foreign governments with particular attention to practices applicable to administration in the United States. (Not offered 1964-65.)
- 216 *Administration of International and Supranational Activities** Jordan
(3 or 6) (JAU)
Analysis of the evolution and application of the administrative process in selected international and supranational activities. Problems of organization and management in multinational supported and staffed activities. Prerequisite: Public Administration 215. (Spring—as arranged.)
- 217 *Seminar: Economic Development and Administration* (3) D. Brown
Examination of the theories of the transfer of administrative capability from one country to another, factors relating to the indigenous culture, strategies of aid, examination of specific national and supranational programs. (Fall—evening.)
- 221 *Staff Functions in Government* (3) Cloutier
Designed primarily to provide an understanding of the nature, use, and problems of the staff functions as tools of management. Survey of such staff areas as personnel, budgeting, controllership, procurement, property management, the agency lawyer, security, public relations and information, planning, research, the secretariat, management engineering, auditing, accounting, and administrative services. (Fall—evening.)
- 225-26 *Internship in the Administrative Processes* (3-3) Sommers
This course is open only to persons selected by government agencies for participation in approved intern programs. (Academic year—as arranged.)
- 232 *Federal Personnel Procedures* (3) Torpey
Study of such personnel functions as recruitment, selection, placement, promotion, supervision, evaluation, classification, and training. Practical problems of personnel administration. (Spring—evening.)
- 233 *Seminar: Manpower Development and Utilization* (3) Sommers
Research projects and case studies in ways and means of increasing employee potential, use of training programs, executive development, incentive systems. (Fall—evening; summer 1964.)
- 243 *Local Government Law†* (2) Mallison
The decision-making processes in metropolitan and local communities; types and objectives of city, county, and special function local government units; intergovernmental units; intergovernmental relations; original organization and changes; local lawmaking; community planning and development. (Spring—evening.)
- 244 *Administration in Metropolitan Governments* (3) Cloutier
Examination of public administration at the local level. Developments and trends growing out of the changing urban pattern. (Fall—evening.)
- 246 *Urban Dynamics* (3) Woodruff
(Formerly Business Administration 213)
Background course for the developing curriculum in city planning. The course traces the forces that lie behind investment decisions which in turn determine the development of cities. (Spring—evening.)

* Offered jointly by The George Washington University and American University. Classes offered at GWU will be designated "JGU"; courses offered at AU will be designated "JAU". GWU students may also take at this University.

† Same as Law 349.

- 251 **Governmental Budgeting** (3) Posner
The role of budgeting in management; the principles and practices of budgetary formulation and administration. (Fall—evening; summer 1964)
- 252 **Seminar: Planning and Programming** (3) Page
The administrative processes of planning and programming in government; relationships to budgeting, planning and programming as a basis of managerial control, evaluation of accomplishments. (Fall—evening; summer 1964)
- 254 **Financial Management in the Federal Service** (3) Krieger
Function of financial management in federal agencies; special problems analyzed; comparison of the financial management (controllership) function in government and business. (Spring—evening)
- 259 **Government Procurement and Property Management** (3)
Principles and problems of government procurement; accounting and inventory; storage; development of specifications; property management. (Spring—evening)
- 260 **Seminar: Policy Formulation and Administration** (3) D. Brown
Development of agency goals and objectives and administration of agency policies; influence of individuals upon these factors involving internal organization and role of executive in furthering administrative policy. (Spring—evening)
- 261 **The Public and the Administrator** (3) Stromsen
The nature of the public interest, ways of determining public opinion, public opinion and the decisionmaking process, theories and methods of working with the public, interest groups, public relations and information programs. (Fall—evening)
- 271 **Reading and Conference Courses in Public Management and Administration** (3) The Staff
The purpose of this course is to provide advanced students with directed reading in specific areas of public management and administration. (Fall—evening)
- 272 **Seminar: Public Personnel Administration** (3) Sommers
The purpose of this course is to provide advanced students with directed reading in specific areas of public personnel administration. (Spring— as arranged)
- 297 **Seminar: Public Administration** (3) The Staff
Advanced research on selected phases of public administration. (Summer 1964)
- 298 **Case Studies in Public Administration** (3) Sommers, Cloutier
(Formerly Public Administration 219)
Analysis and discussion of problems in public management by use of the case method. (Spring—evening; summer 1964)
- 299 **Thesis** (3) The Staff
An examination of thesis standards, research philosophy, and methodology. (Fall and spring—evening; summer 1964)
- 300 **Thesis** (3) The Staff
(Fall and spring— as arranged; summer 1964)

COURSES OFFERED IN SPECIAL PROGRAMS

In addition to the regular courses announced above, the University offers the following public administration courses for students enrolled in the Air Force Advanced Management Program and in Engineering Administration.

- 251 **Governmental Budgeting** (3) (Summer 1964)
- 260 **Seminar in Policy Formulation and Administration** (3)

International Affairs

The International Affairs programs are interdisciplinary in concept and interdepartmental in structure. Programs being developed are: Comparative Institutions and Cultures, Political and Economic Development, International Politics, Law and Organization, National Security, Sino-Soviet Studies. The courses listed below are an indication of the range of elective courses available. For course descriptions see the departmental announcements concerned.

GENERAL

- Anthropology 161, *Language and Culture* (3)
- Anthropology 263, *Culture Contact and Change* (3)
- Economics 131-32, *International Economics* (3-3)
- Economics 246, *Foreign Labor Movements* (3)
- Economics 231-32, *International Economics* (3-3)
- Economics 234, *United States Foreign Economic Policy* (3)
- Economics 290, *Seminar: International Economics* (3)
- Geography 52, *World Regions* (3)
- Geography 126, *World Economics* (3)
- Geography 127, *World Population and Settlement* (3)
- Geography 143, *Elements of Political Geography* (3)
- Geography 145, *Psychological Geography* (3)
- Geography 146, *World Political Geography* (3)
- Geography 241-42, *Seminar: Place and Culture* (3-3)
- Geography 253-54, *Seminar: Problems of Developing Nations* (3)
- History 131-32, *Diplomatic History of the United States* (3-3)
- History 183, *Oversea Expansion of the United States* (3)
- History 184, *Canada and the United States* (3)
- History 231-32, *Seminar: Diplomatic History of the United States* (3-3)
- History 235-36, *Reading Course in American Diplomatic History* (3-3)
- *International Affairs 260, *Fundamentals of National Power* (3)
- *International Affairs 261, *International and United States Foreign Policy* (3)
- *International Affairs 262, *National Security Policy of the United States* (3)
- *International Affairs 297, *Readings in International Affairs* (1 to 2)
- *International Affairs 299-300, *Theses* (3-3)
- Political Science 111, *Introduction to Comparative Government and Politics* (3)
- Political Science 112, *Introduction to Comparative Government and Politics* (3)
- Political Science 117-13, *Political Theory, the Nature and Growth of Political Thought in the West* (3-3)

* Offered in off-campus War College program only.

- Political Science 171, *International Politics* (3)
 Political Science 172, *Organization and Function of the United Nations* (3)
 Political Science 181-82, *Survey of Public International Law and Organization* (3-3)
 Political Science 187-88, *Current Problems in International Politics* (1-1)
 Political Science 197, *Proseminar in International Affairs: Strategies of Contemporary American Foreign Policy* (3)
 Political Science 212, *Seminar: Comparative Government and Politics* (3)
 Political Science 213, *Readings in Comparative Government and Politics* (3)
 Political Science 217, *Seminar: Topics in Political Theory* (3)
 Political Science 220, *Reading Course in Political Theory* (3)
 Political Science 271-72, *Problems in International Politics and Organization* (3-3)
 Political Science 273, *Public Opinion and Foreign Policy* (3)
 Political Science 274, *Methods and Objectives of Foreign Policy* (3)
 Political Science 275, *International Relations: Concepts and Approaches* (3)
 Political Science 279, *Reading Course in International Politics* (3)
 Political Science 281-82, *Seminar: International Law and Relations* (3-3)
 *Political Science 283, *Topics in International Law* (3)
 *Political Science 285, *Diplomacy Since World War II* (3)
 Psychology 156, *Psychology of Propaganda and Public Opinion* (3)
 Psychology 262, *Behavioral Factors in Social Change* (3)
 Sociology 144, *Mass Communications* (3)
 Sociology 226, *Problems of Underdeveloped Areas* (3)
 Sociology 241, *Population Problems* (3)

AFRICA

- Geography 155, *Africa* (3)
 Political Science 192, *Politics of North and Central Africa* (3)

FAR EAST

- Geography 165, *Eastern and Southeastern Asia* (3)
 History 187, *History of Modern China* (3)
 History 190, *History of India* (3)
 History 195-96, *History of East Asia* (3-3)
 Political Science 194, *Far Eastern Politics: Contemporary International Relations in the Pacific Area* (3)
 Political Science 297-94, *Seminar: International Politics and Government in the Pacific Area* (3-3)

* Enrolled in off-campus War College program only.

LATIN AMERICA

- Economics 185-86, *Economic History and Problems of Latin America* (3-3)
 Economics 285-86, *Economic Development of Latin America* (3-3)
 Economics 287-88, *Latin America: Trade and Commodity Policy* (3-3)
 Geography 161, *Latin America* (3)
 History 163, *Colonial Latin America* (3)
 History 164, *South America since Independence* (3)
 History 166, *Mexico and the Caribbean since Independence* (3)
 History 261-62, *Seminar: Latin American History* (3-3)
 Political Science 177, *Recent Trends in Latin American Politics and Government* (3)
 Political Science 277, *Seminar: Latin American Government* (3)
 Political Science 278, *Seminar: Latin American Political Philosophy* (3)

MIDDLE EAST

- Geography 156, *The Middle East* (3)
 History 193, *History of the Near East* (3)
 History 294, *Seminar: the History of the Modern Near East* (3)
 Political Science 191, *Politics of the Middle East* (3)
 Political Science 292, *International Politics and Government in the Middle East* (3)

SINO-SOVIET

- Economics 267, *The Soviet Economy* (3)
 Education 281, *Seminar: the Educational System of the Soviet Union* (3)
 Education 282, *Seminar: the Educational System of Communist China* (3)
 Geography 265, *Seminar: Geography of the Soviet Union* (3)
 Geography 266, *Seminar: Geography of China** (3) (JCW)
 History 245, *Seminar: Eurasian History* (3)
 History 248, *Reading Course in Russian History* (3)
 History 295-96, *Seminar: History of the Modern Far East I-II* (3-3)
 Political Science 215-16, *Seminar: the Sino-Soviet Blocs in World Affairs I-II* (3-3)
 Political Science 224, *Readings in Socialism and Communism* (3)
 Political Science 225, *Seminar: Theoretical Problems of Marxism-Leninism* (3)
 Political Science 227, *Seminar: the Politics of Eastern Europe* (3)
 Political Science 230, *Seminar: Operational Techniques of International Communism* (3)

* See footnote on page 75

- Political Science 231, *Seminar: the Sino-Soviet Conflict** (3) (JGW)
- Political Science 232, *Seminar: International Communication—the Sino-Soviet Orbit* (3)
- Political Science 233, *Seminar: Soviet Government and Politics* (3)
- Political Science 234, *Seminar: Soviet Internal Policy* (3)
- Political Science 237, *Chinese Law†* (3)
- Political Science 238, *Soviet Law†* (3)
- Political Science 253, *Seminar: Chinese Government and Politics* (3)
- Political Science 256, *Seminar: the Politics of North Korea and North Vietnam** (3) (JGW)
- Political Science 264, *Seminar: Sino-Soviet Relations with South Asia* (3)
- Political Science 269, *Seminar: the Soviet Foreign Policy Process* (3)
- Political Science 270, *Seminar: Soviet Foreign Policy* (3)
- Political Science 288, *Seminar: Soviet Military Policy and Strategy* (3)
- Political Science 295, *Seminar: China in the Communist Bloc* (3)
- Political Science 296, *Seminar: the Communist Bloc in Far Eastern International Politics* (3)
- Political Science 298, *Seminar: Sino-Soviet Relations with Southeast Asia* (3)
- Psychology 259, *Seminar: Social Psychology of Communism* (3)
- Slavic Languages and Literatures 161-62, *Russian Culture* (3-3)
- Slavic Languages and Literatures 165, *Soviet Literature* (3)

WESTERN EUROPE

- Geography 153, *Western Europe* (3)
- Geography 154, *The Mediterranean* (3)
- History 141-42, *History of France* (3-3)
- History 148, *Oversea Expansion of Europe* (3)
- History 149-50, *European Diplomatic History* (3-3)
- History 241-42, *Seminar: Modern European History* (3-3)
- History 249, *Seminar: European Diplomatic History* (3)
- Political Science 113, *Political Problems of the British Commonwealth of Nations* (3)
- Political Science 178, *International Politics in the Western Hemisphere* (3)

* Selected jointly by The George Washington University and American University. Courses offered at GWU will be designated JGW. Courses offered at AU will be designated JAU. GWU students transfer at the University.

† Course as Law 4-4-2. Graduate students registering for Political Science 237 make special arrangements with the instructor for supplementary assignments equivalent to one additional semester.

‡ Course as Law 4-4-2. Graduate students registering for Political Science 238 make special arrangements with the instructor for supplementary assignments equivalent to one additional semester.

Institute for Sino-Soviet Studies

For a description of the objectives and programs of the Institute, see pages 47-48. Information concerning courses to be offered jointly with American University will be available in the *Schedule of Classes* for the fall and spring semesters.

ECONOMICS

267 *The Soviet Economy* (3)

Development of the Soviet-type economy; organization, policies and problems; money, fiscal, production, allocative, foreign trade, economic growth. (Fall—evening.) Gekker

EDUCATION

281 *Seminar: the Educational System of the Soviet Union* (3) (Fall—evening.)

282 *Seminar: the Educational System of Communist China* (3) (Spring—evening.)

GEOGRAPHY

265 *Seminar: Geography of the Soviet Union* (3)

A detailed study of the area, including physical features, economic geography, natural and energy resources, and industries. A discussion of the latest Soviet trends of the Soviet transportation system, of agriculture, and of multinational population trends, with emphasis on population patterns along borderlands, especially the Sino-Soviet border. (Fall—evening.) Petrov

266 *Seminar: Geography of China** (3) (JGW)

A study of the physical and economic geography of the country, including discussion of China's emerging industries, energy resources, transportation system. Special emphasis will be given to the population 'explosion', its distribution and significance. Emphasis also on regional geography, particularly on regions along the Sino-Soviet border, Manchuria, Tibet, Mongolia, Inner Mongolia, and Sinkiang. (Spring—evening.) Petrov

HISTORY

245 *Seminar: Eurasian History* (3)

A seminar in which students prepare research papers in some selected area of Eurasian History. For the fall semester 1964, the selected area from which individual topics are chosen will be the Russian revolution. (Fall—day.) Thompson

246 *Reading Course in Russian History* (3)

A graduate course for weekly reading and discussion in Russian 19th and 20th century history. Political and intellectual movements reflecting the rise and fall of the revolutionary cycle will be emphasized. (Spring—evening.) Thompson

295-96 *Seminar: History of the Modern Far East I-II* (3-3)

First half: social and intellectual revolution in Modern China; the replacement of the ruling class by the bourgeoisie of the 20th century. Emphasis placed upon the social changes that took place after 1919. *Second half:* the development of United States Far Eastern policy since 1898, with emphasis on the coming of World War II and United States policy toward China since 1941. (Academic year—day.) Gasster

POLITICAL SCIENCE

- 215-16 *Seminar: the Sino-Soviet Blocs in World Affairs I-II (3-A)* London
First half: A study of the most significant issues of the Communist movement and its manifestations particularly in the Soviet Union and Red China; an examination of the concept and structure of the "world socialist system" and of intra-Bloc relations with special emphasis on the Sino-Soviet dispute. *Second half:* An examination of the political ramifications of the international Communist movement and Communist relations with the non-Communist world, with special emphasis on the socialist countries in Africa, Asia, and Latin America. (*First half:* fall-evening. *Second half:** (JGW): spring-evening.)
- 221 *Readings in Socialism and Communism (3)* Kraus
 A reading course designed, on the basis of selected readings of both primary and secondary works, to introduce students to the most significant developments in post-Marxian and Marxian socialism and Leninist communism. (Fall-evening.)
- 225 *Seminar: Theoretical Problems of Marxism-Leninism (3)* Kraus
 Critical theoretical problems, such as the nature of socialism, the dictatorship of the proletariat, the transition to communism, imperialism, and national liberation in their development from Marx and Engels to Lenin, Khrushchev, and Mao-Tse-tung. (Spring-evening.)
- 227 *Seminar: the Politics of Eastern Europe (3)* Maday
 Comparative study of the political, political, social, and economic characteristics of the area; analysis of the events since World War II; the Soviet stake in the area; patterns of Soviet domination; efforts of economic and political integration; the impact of the Sino-Soviet dispute; U. S. policy toward the satellite nations. (Fall-evening.)
- 230 *Seminar: Operational Techniques of International Communism (3)* Metz
 Strategy and tactics of the international Communist movement in the post-Stalin period, with emphasis on the major episodes of Communist action, international and national Communist front organizations, and Sino-Soviet Bloc agencies in the free world. Prerequisite: a general understanding of Communist ideology and of the workings of political movements. (Fall-evening.)
- 231 *Seminar: the Sino-Soviet Conflict* (3) (JGW)* Michael
 A discussion of the background, development, and status of the conflict within the Communist movement, with special emphasis on the role of the Chinese Communists in the dispute. (Fall-evening.)
- 232 *Seminar: International Communication—the Sino-Soviet Orbit (3)* Karch
 History and theory of communication; image factors—semantic and national character; communication within the Communist orbit with emphasis on media; "satellite orbit" communication to the Free World; Western communication to the orbit, including VOA and BBC. (Spring-evening.)
- 233 *Seminar: Soviet Government and Politics (3)* Overstreet
 An analysis of the theoretical and historical bases of the Soviet political system, and the socioeconomic setting of its formation; the status and role of the Party, government, and mass organizations, and selected problems of domestic and foreign policy. (Fall-evening.)
- 234 *Seminar: Soviet Internal Policy (3)* Block
 An examination of how Soviet organization and administration and Soviet policies in social and economic, nationality and military matters have been influenced by revolution.

* offered jointly by The George Washington University and American University. Classes offered at GWU will be designated "JGW"; classes offered at AU will be designated "JAU." (JGW) and (JAU) are used at this University.

tematic ideas, by traditions, and by accidental events and how the leaders have applied these policies to maintain their power and to transfer man, society, and nature according to their lights. (Spring-evening.)

237 *Chinese Law** (3)

A short survey of the history of Chinese law and its social background; changes of Chinese law between the turn of the century and the end of the Manchu dynasty; legal concepts of the Chinese Republic from 1911 until the communist take-over in 1949. The philosophy and development of the communist legal system. (Spring-evening.)

238 *Soviet Law*† (3)

Concept of "socialist legality"; impact of Soviet legal system upon the individual in his relationship with the state and other participants in Soviet society; role of Communist Party in the institutional framework of the Soviet legal system; Soviet philosophy of law; state (constitutional) law including Soviet federalism, governmental apparatus, and rights and obligations of citizenship; criminal law, including economic crimes, role of social and public organizations in administration of justice, and concept of "administrative" punishment. (Fall-evening.)

253 *Seminar: Chinese Government and Politics* (3)

A discussion of the political institutions and concepts in late imperial times, during the period of the revolution, under the national government, and under the communists. The main emphasis of the seminar will be on the communist period. (Spring-evening.)

256 *Seminar: the Politics of North Korea and North Vietnam*‡ (4) (JGW)

An assessment of the positions of North Korea and North Vietnam between the Soviet Union and Communist China; history and issues of the Sino-Soviet dispute as related to the Asian situation; the roles of Moscow and Peking in the creation of these two satellites; the techniques applied in the power take-over and the character of leadership. Internal and external developments of these two regimes will be related to the issues involved in the Sino-Soviet dispute; factors and motives which impel leading Communist leaders in North Korea and North Vietnam to support one or the other of the two major Communist powers will be examined. (Spring-evening.)

264 *Seminar: Sino-Soviet Relations with South Asia* (3)

A discussion of the conflict between Soviet and Chinese Communist aims in relation to India against the background of Soviet and Chinese diplomacy towards India's neighbors, especially Pakistan. (Spring-evening.)

269 *Seminar: the Soviet Foreign Policy Process* (3)

An analysis of a selected major Soviet foreign political problem, undertaken by each student individually and partly by the seminar, to clarify the various international political, military, economic, propaganda and other factors which enter into Soviet policy-making. Assignment of individual problems will be based on the particular interests and background of each student. (Fall-evening.)

270 *Seminar: Soviet Foreign Policy* (3)

An investigation of the external instruments of Soviet foreign policy with emphasis on the operations of communist parties and fronts. (See the current Institute brochure for specific organization and emphasis of the course.) (Spring-evening.)

* Same as Law 474 (2). Graduate students registering for Political Science 237 make special arrangements with the instructor for supplementary assignments equivalent to one additional semester hour.

† Same as Law 473 (2). Graduate students registering for Political Science 238 make special arrangements with the instructor for supplementary assignments equivalent to one additional semester hour.

‡ Offered jointly by The George Washington University and American University. Courses offered at GWU will be designated "JGW", courses offered at AU will be designated "JAU". GWU and AU are equal partners in this University.

- 293 *Seminar: Soviet Military Policy and Strategy* (3) Wolfe
Soviet developments in the area of military policy and strategy with some attention to questions of intra-Bloc military cooperation; political context within which Soviet military policy is formulated; significant changes in recent Soviet military thought. (Fall—evening.)

- 295 *Seminar: China in the Communist Bloc* (3) Hinton
An introduction to methods and bibliography; history of the Chinese Communist movement; ideology and political dynamics; economic and military policy; foreign policy and relations. (Spring—evening.)

- 296 *Seminar: the Communist Bloc in Far Eastern International Politics* (3) Hinton

The Communist strategy for Asia; Stalin's Far Eastern policy; growth of local Communist movements; impact of World War II; Soviet post-war policy in Asia; victory in China; the Korean and Indo-Chinese wars; armed struggle in South and Southeast Asia; working of the national bourgeoisie; development of the Asian communist states; and communist parties since World War II; Sino-Soviet rivalry. (Fall—evening.)

- 298 *Seminar: Sino-Soviet Relations with Southeast Asia* (3) Boyd
A survey of the degree of cooperation and conflict between Soviet and Chinese Communist interests and objectives, as well as their diplomatic and revolutionary methods in Southeast Asia; the effects of conflicting and conflicting policies on Southeast Asian countries. (Fall—evening.)

PSYCHOLOGY

- 299 *Seminar: Social Psychology of Communism* (3) White
Psychological aspects of authoritarian systems and of all-embracing political ideologies; methods and findings in the study of public opinion in the USSR and its satellites; problems of Western communications with the USSR; the nature of Communist propaganda and the appeals of Communism in non-Communist countries. (Fall—evening.)

SLAVIC LANGUAGES AND LITERATURE

- 161-62 *Russian Culture* (3-3) Olkhovsky
A survey of Russian cultural heritage from the origins of ancient Russia to the present. Lecture, recitation, discussion, and individual reports on assigned topics. This course may be taken for graduate credit with the approval of the instructor. Academic year—evening; summer 1964.)

- 165 *Soviet Literature* (3) Popluiko
A survey of major literary figures, literary movements, and literary styles. Revolution and its impact on writers. The theme of the Civil War in literature. The place of the Soviet intelligentsia in Soviet society. Revival of the psychological novel, social realism, and government control of literature. This course may be taken for graduate credit with the approval of the instructor. (Fall—evening.)

Courses from other Departments

AMERICAN THOUGHT AND CIVILIZATION

101 *American Civilization* (3)

Walker and Staff

Lecture (1¼ hours), discussion (1¼ hours). This is a University-sponsored course designed to offer all students, toward the end of their residence, a broad assessment of the culture in which they are to live and to work. Contemporary problems and characteristics of American society are presented against the background of the human subjects: political, social, and economic problems; intellectual attitudes; important trends in literature, science, the arts, religion, and philosophy. Discussion sections will combine lecture materials with assigned readings in order to achieve an ordered sense of the overall state of American civilization. Prerequisite: successful completion of 85 semester-hours credit. Open to graduate students, but available for graduate credit to students in the School of Education only. Recommended as an elective, but not to be taken as part of any major program without specific departmental approval. (Fall—late afternoon; spring—evening.)

BOTANY

Biology

FIRST GROUP

1-2 *Introductory Biology* (4-4)

The Staff

An interdepartmental course. Lecture (2 hours), laboratory (4 hours). This course is designed to provide the nonscience student with an understanding of the life sciences and to serve as a basis for those who may wish to continue in some aspect of biology. It is the introductory course leading to all second- and third-group courses in botany and zoology, and is taught jointly by the staff members of the two departments. Designed to be taken in either sequence; students may be registered for either 1 or 2 at the beginning of the academic year, depending on laboratory space available. Material fee, \$10 a semester. (*Biology 1—Plant Sciences* (4): fall and spring—day and evening; summer 1964. *Biology 2—Animal Sciences* (4): fall and spring—day and evening; summer 1964.)

CHEMISTRY

3-4 *Fundamentals of Physical Science* (4-4)

Schmidt, Ethier

A year course; credit is not given for the first half until the second half is completed. Lecture (3 hours), laboratory (3 hours). Selected topics from chemistry, physics, astronomy, and geology are integrated to introduce the nonscience major to the basic methods and achievements of physical science. Laboratory fee, \$11 a semester. (Academic year—day; summer 1964.)

ECONOMICS*

FIRST GROUP

- 1-2 *Principles of Economics* (3-3) Skinner and Staff
Lecture (2 hours), recitation (1 hour). Survey of the major economic principles, institutions, and problems in contemporary life. Economics 1 is prerequisite to Economics 2. (First half: fall—day and spring—day and evening; summer 1964. Second half: fall—evening; spring—day and evening; summer 1964.)

SECOND GROUP

- 3-4 *Economic Analysis* (3-3) The Staff
Analysis of demand, supply, and pricing; theory of national income determination. (First half: fall—day and evening; spring—evening; summer 1964. Second half: fall—day; spring—day and evening; summer 1964.)
- 5-6 *History of Economic Thought* (3) Burns
History of the major schools of economic thought; influence of changing problems on the development of economic theory. (Spring—day.)
- 7-8 *Business Cycles* (3) Kendrick
Description and analysis of the facts of economic instability, survey of recent business cycle theory, forecasting, and consideration of counter-cyclical policies. (Fall—evening.)
- 9-10 *Money and Banking* (3) Hunter
Theory of money, credit, and banking; commercial banking and the Federal Reserve System; other financial institutions; international aspects of money; current financial problems. (Fall—day and evening; spring—evening; summer 1964.)
- 11-12 *Monetary Theory and Policy* (3) Hunter
Principal contemporary theories, background of recent monetary policy. (Spring—day.)
- 13 *The Economy of the Soviet Union* (3)
Development and main features of the economic life of the Soviet Union. (See History 145-46 and Geography 166. (Not offered 1964-65.)
- 14 *Unionism and Collective Bargaining* (3) Holland
The development and characteristics of American unionism and collective bargaining as economic and social institutions; appraisal of economic and social aspects, public policies and controls. (Fall—day.)
- 15 *Labor Economics* (3) Holland
Characteristics of the American labor force, operations of labor markets, wage theories and practices, impact of collective bargaining, causes and characteristics of unemployment, public policies and programs. (Spring—day.)
- 16-17 *Public Finance and Taxation* (3-3) The Staff
General survey of government expenditures; sources and methods of taxation; economic effects of expenditures, taxes, and of government debt policies. (Academic year—evening.)
- 18 *Government Control of Economic Activity* (3) Watson
Changing role of government in promoting and regulating economic activity, types and spheres of control. (Fall—day.)
- 19-20 *International Economics* (3-3) Aschheim
First half: survey of the theory of international trade, factor movements, and balance-of-payments adjustment. Second half: analysis of modern international economic problems including problems of less developed countries. (Academic year—day and evening.)

*Economics 1-2 is prerequisite to all other courses in Economics

- 185-86 *Economic History and Problems of Latin America* (3-3) The Staff
Evolution of the economies of Latin America with particular emphasis on present structures and problems, considered in the regional, country, and sub-region contexts. Economics 185, special attention to Middle America; Economics 186, special attention to South America. (Academic year—evening.)

- 198 *Proseminar in Economics* (3) Skinner (Fall)
Comprehensive survey of economics. Prerequisite: Economics 101-2 and 121. and spring—as arranged.)

THIRD GROUP

- 201-2 *History and Literature of Economic Thought* (3-3) Burns
Critical analysis and interpretation of the development and the literature of economic thought, origins, and problems, of the major types of theory, and their relation to present problems and policies. (Academic year—evening.)

- 203-4 *Contemporary Price Theory* (3-3) Watson
The theory of relative prices from Marshall to the present. (Academic year—evening.)

- 205 *Theory of Employment and Income* (3) Kendrick
Determinants of the level of employment and income. Keynesian and classical systems contrasted, and recent literature on the subject. (Fall—evening.)

- 206 *Business Cycle Analysis* (3) Kendrick
Empirical analysis of American business cycles; evaluation of the methodology and findings of the National Bureau of Economic Research. Statistical tests of theories of the business cycle. (Spring—evening.)

- 208 *The National Income* (3) Kendrick
The theory of economic aggregates; measurement and policy aspects of national income. (Spring—evening.)

- 210 *Seminar in Economics* (3) Skinner
Methodology of economics, integration of economic theories, methods of research. Open only to students who have completed fifteen hours of graduate work in economics. (Academic year—evening.)

- 212 *Seminar in Price Theory* (3) Watson
Advanced topics in the theory of relative prices. Prerequisite: Economics 203-4 or the equivalent. (Fall—evening.)

- 213 *Economic Thought in the 20th Century* (3) Burns
Continuation of Economics 201-2. The principal trends in economic thought during the present century. (Fall—evening.)

- 215-16 *Mathematical Economics* (3-3) Solomon
Introduction to the uses of mathematics in economic theory. (Academic year—evening.)

- 217-18 *Survey of Economics* (3-3) Watson
Survey of economic analysis and policy. Not open to graduate students in economics or economic policy. (Academic year—evening.)

- 219 *Managerial Economics* (3) Watson (Not offered)
Analysis of price, production, and inventory policies of business firms. 1964-65.)

- 221-22 *Monetary Theory* (3-3) Hunter
Contemporary monetary theories. (Academic year—evening.)

- 223-24 *Monetary Policy and Central Banking* (3-3) Aschheim
The money system in its relation to national income; monetary policies of the Federal Reserve and other central banking systems. (Academic year—evening.)

- 231-32 *Quantitative Economics* (3-3) Solomon
Selected topics in quantitative economics. (Academic year—evening.)
- 241 *Unionism, Collective Bargaining, and Labor Economics* (3) Holland
An accelerated introductory course in labor economics primarily for graduate students in Personnel Administration. (Fall—evening.)
- 244 *Problems in Unionism, Collective Bargaining, and Labor Economics* (3) Holland
Concentrated study of selected economic, social, and legal aspects of labor relations and labor economics. (Spring—evening.)
- 246 *Foreign Labor Movements* (3) Holland
Labor in the economic, social, and political structures of selected foreign countries. Contrasts and comparisons with the United States. (Spring—evening.)
- 247 *Labor Relations in the Federal Service* (3) Holland
Admission by permission of the instructor. (Fall and spring—evening.)
- 251-52 *Economic Development* (3-3)
The theories and problems of economic growth with special attention to the underdeveloped countries. (Academic year—evening.)
- 253 *Productivity Analysis* (3) Kendrick
Concepts and measures of productivity; relations to economic growth and to structural changes in the American economy. (Fall—evening.)
- 261-62 *Public Finance and Fiscal Policy* (3-3) Moor
Special problems in contemporary public finance and fiscal policy. (Academic year—evening.)
- 263-64 *Theory of Public Finance* (3-3) The Staff
Criteria for the allocation of government expenditures, principles of taxation, fiscal policy for stable growth. (Academic year—evening.)
- 265-66 *Theory of Economic Policy* (3-3) Watson
The nature, forms, methods, and objectives of economic policy; the relation of economic theory to economic policy. (Academic year—evening.)
- 267 *The Soviet Economy* (3) Gekker
Development of the Soviet-type economy; organization, policies, and problems: monetary, fiscal, production, allocation, foreign trade, economic growth. (See also History 145-46, 247-48, and Geography 166.) (Fall—evening.)
- 281-82 *International Economics* (3-3)
First half: the theory of international trade and factor movements. Second half: the theory of balance-of-payments adjustment. (Academic year—evening.)
- 284 *United States Foreign Economic Policy* (3) Schmidt
Analysis of foreign aid programs; international, commercial, and monetary policy of the United States; United States and international economic organization. (Not offered 1964-65.)
- 285-86 *Economic Development of Latin America* (3-3) Sammons
Current policies and programs, capital formation, public and private; foreign loans and investment; social and technological perspectives of investment. (Academic year—evening.)
- 287-88 *Latin America: Trade and Commodity Policy* (3-3)
Tariffs and exchange control systems, bilateral and general commercial agreements, terms of trade. (Not offered 1964-65.)
- 290 *Seminar in International Economics* (3) Schmidt
Advanced topics in international economics. Prerequisite: Economics 281-82 or the equivalent. (1965-66 and alternate years: spring—evening.)
(Academic year—as arranged; summer 1964.)
- 299-300 *Thesis* (3-3) The Staff

COURSES OFFERED IN SPECIAL PROGRAMS

In addition to the regular courses announced above, the University offers the following economics courses for students enrolled in New Graduate Financial Management Program and Air Force Advanced Management Program:

191 *Foreign Economic Policies and Problems* (3)

195 *Governmental and Industrial Economics* (3)

ENGLISH

*English Composition****A English for Foreign Students** (3)

A course in reading and writing designed to assist the foreign student in overcoming difficulties in the use of English. Special attention is given to spelling, syntax, grammar, idiom, and vocabulary. (Fall and spring—day and evening; summer 1964.)

Wright and Staff

B English for Foreign Students (3)

For second-semester foreign students not yet ready for English 1. Writing of expository paragraphs and themes; outlining; reading for comprehension, vocabulary, and style. (Fall—evening; spring—day and evening; summer 1964.)

Wright and Staff

1 English Composition* (3)

Review of grammar; exercises in composition, readings. (Fall and spring—day and evening; summer 1964.)

Moore and Staff

1X English Composition* (3)

An intensive course in English grammar and composition to which are assigned students whose placement tests show them inadequately prepared for the regular work of English 1. The course begins with detailed instruction, drill, and exercises in the basic structure of the English language and in the writing of paragraphs; it continues with the content of English 1. English 1X meets five hours a week and carries 3 semester hours of credit. The total fee is \$143 (the tuition fee of \$108 plus an additional fee of \$25). (Fall and spring—day and evening; summer 1964.)

Moore and Staff

2 English Composition* (3)

For second-semester freshmen not following the Columbian College of Arts and Sciences sequence. Readings and practice in expository and argumentative techniques and in research procedure. Prerequisite: English 1 or 1X. (Fall and spring—day and evening; summer 1964.)

Moore and Staff

4 English Composition (3)

The second half of the six-hour English Composition course required of students in Columbian College. A course in critical analysis and practice in expository and argumentative techniques and in research procedure. Prerequisite: English 1 or 1X and half-semester of one of the introductory literature courses. (Fall and spring—day and evening; summer 1964.)

Moore and Staff

* Before students are registered in English 1, they are tested in the minimum essentials of vocabulary, grammar, reading, and writing skills. Those students who show marked weakness may have special instruction. Further tests are completed from time to time. One of the English Composition courses (English 1 or 1X) is prerequisite to all other courses in English. English 2 is the second half of the six-hour composition course required.

English Literature

- 51-52 *Introduction to English Literature* (3-3) Highfill and Staff
Historical survey. Prerequisite: English I or IX. (Academic year—day and evening; summer 1964.)
- 91-92 *Introduction to European Literature* (3-3) Shepard and Staff
Consideration of various types. Prerequisite: English I or IX. (Academic year—day and evening; summer 1964—English 92 (3).)

American Literature

- 71-72 *Introduction to American Literature* (3-3) Cole and Staff
A historical survey. *First half*, from the beginnings to the Civil War. *Second half*, from the Civil War to the present. Prerequisite: English I or IX. (Academic year—day and evening; summer 1964.)

GEOGRAPHY AND REGIONAL SCIENCE

FIRST GROUP

- 51 *Introduction to Geography* (3) The Staff
A study of place attributes and characteristics, patterns and associations of physical and cultural earth features. (Fall—day; spring—evening.)
- 52 *World Regions* (3) The Staff
The analysis of world regional divisions, description and interpretation of regional complexes, evaluation of regional differences as they affect the distribution and activities of man. (Fall—evening; spring—day.)

SECOND GROUP

- 13-14 *Cartography* (3-3) The Staff
A year course; credit is not given for the first half until the second half is completed. Principles of cartographic drafting; elementary map projections; map and graph planning; design and construction; uses and interpretation of maps. Prerequisite: Geography 51 and 52. Laboratory fee, \$11 a semester. (Academic year—Saturday morning.)
- 124 *Land Capabilities* (3)
Evaluation of land capabilities based on analysis of locational, physical, economic, and social land characteristics. Principles of site analysis and best use. Systems of measurement of area potential. (1965-66 and alternate years.)
- 125 *Transportation Complexes* (3)
A study of transportation networks and systems by which people, things, and ideas are given varying degrees of place utility. An analysis of the role of transportation in urban, national, and international relationships. (1965-66 and alternate years.)
- 126 *World Economics* (3) Cassaway
Description and comparison of differing regional economies—pastoral, agricultural, industrial; patterns of world distribution. (1964-65 and alternate years—fall—day.)
- 127 *World Population and Settlement* (3) Cassaway
Population composition, structures, and distribution; characteristic world settlement patterns in terms of population organization. Assessment of factors contributing to population pressures, expansions and migrations, urban and rural settlement patterns and trends. (1964-65 and alternate years: spring—day.)

- 133 *Regional Industrial Structures* (3) Westermann
The nature of the industrial complex, types and distribution of industry, principles of industrial and economic development planning. (1964-65 and alternate years: fall-day.)
- 134 *Location of Industry* (3) Westermann
Structure and development of the major world industries, industrial location requirements, principles of industrial equilibrium. (1964-65 and alternate years: spring-day.)
- 139 *The Common Market* (3) Reinstein*
Analysis of the forces leading to the economic movement toward Western European cooperation and unity; the present status; problems, trends; the outlook for future development; American interests and American policies. (Summer 1964.)
- 141-42 *Urban Settlement* (3-3)
Location, functions, and forms of cities; urban-rural relationships; the urban hierarchy; urban problems and the history of their development; the city of the future. (1965-66 and alternate years.)
- 143 *Elements of Political Geography* (3) Van Valkenburg
An introduction to systems of analyzing the political structures and functions of nations; political geographic theories and principles; interpretations and evaluations. (Fall-day.)
- 144 *Cultural Backgrounds of Western Europe* (3) Koenig*
Cultural backgrounds of Western European nations, with emphasis on the geographic areas and cultural development which have the greatest impact on the Western Alliance today; significance of these factors to an understanding of contemporary American culture and the United States power position. (Summer 1964.)
- 145 *Psychological Geography* (3) Van Valkenburg
A study of differences in national character structures; model behavior patterns and personality traits typical of various cultures; difficulties these differences present in interpersonal relations and intercultural communications. (Fall-day.)
- 146 *World Political Geography* (3) Van Valkenburg
Types and distributions of political systems, the major political units and associations of the world, factors which affect relative political power, areas of conflict and arbitration. (Spring-day.)
- 151 *United States†* (3) Davis
(Spring-day.)
- 153 *Western Europe†* (3) Van Valkenburg
Regional geography of Western Europe: terrain, climates, population, economic activities, regions. (Summer 1964.)
- 154 *The Mediterranean†* (3) Gassaway
(Not offered 1964-65.)
- 155 *Africa†* (3)
(Fall-day.)
- 156 *The Middle East†* (3)
(Not offered 1964-65.)
- 161 *Latin America†* (3)
(Not offered 1964-65.)

* Appointment for summer 1964.

† Regional surveys. No prerequisites. For students particularly interested in the study of specific regions, regional courses in the Department of Economics, History, and Political Science are strongly recommended, for example: Economics 164, *Economic History and Problems of Latin America*; History 164, *South American Since Independence*; and Political Science 177, *Recent Trends in Latin American Political and Governmental*.

- 164 *Communist China** (3) Davis
(Fall—day.)
- 165 *Eastern and Southeastern Asia** (3)
(Not offered 1964-65.)
- 166 *The Soviet Union** (3) Gassaway
(1964-65 and alternate years: spring—day.)
- 167-70 *Field Trip to Western Europe* (3-3) Van Valkenburg
Five weeks of lectures, illustrated by visiting the places as they are discussed, covering physical, economic, political, and social geography. Countries included in the 1964 *Field Trip to Western Europe* are: England, The Netherlands, Belgium, France, Italy, Switzerland, and West Germany. (Summer 1964.)
- 173-74 *City Planning* (3-3) Davis
Optimum designs for future cities; theory and techniques of planning; action and implementation; information systems for city planning; methods of analysis of urban data; the design of proposed urban development and renewal. (Academic year—evening.)
- 175-76 *Regional Planning* (3-3)
Regional systems and subsystems; regional structures and functions; regional analysis; regional information systems; methods of economic and social planning; design of plans; government and implementation. (1965-66 and alternate years.)
- 179-80 *Readings in Urban and Regional Development* (1-1) Davis
(Academic year—as arranged.)
- 189-90 *Readings in Geography* (1-1) Gassaway
(Academic year—as arranged.)
- 199-200 *Theory of Regions* (3-3)
Area synthesis; comparison of the constructs region, system, and field; delimitation, measurement, and analysis. (Not offered 1964-65.)

THIRD GROUP†

- 201-2 *Seminar: History and Philosophy of Geography* (3-3) Van Valkenburg
A year course: credit is not given for the first half until the second half is completed. A study of the development of geographical thought and an attempt to develop a useful, contemporary philosophy of geography. (1964-65 and alternate years: academic year—evening.)
- 205-6 *Area Data Collection and Analysis* (3-3)
A year course: credit is not given for the first half until the second half is completed. Lecture (1 hour), laboratory and field (2 hours). Sources of regional information; methods and systems of data collection; quantitative and qualitative methods of analysis; systems of synthesis. (1965-66 and alternate years.)
- 223-24 *Seminar: Regional and Urban Planning* (3-3) Westermann
A year course: credit is not given for the first half until the second half is completed. Analysis of the planning function, major problems confronting the planner, contemporary status of planning—its areas of success and failure. (1964-65 and alternate years: academic year—evening.)

* Regional Survey. No prerequisites. For students particularly interested in the study of specific regions, regional divisions in the Department of Geography. History and Political Science are strongly recommended. For example, Economics 425-2, *European History and Problems of Latin America*, History 404, *South America since Independence*, and Political Science 171, *Recent Trends in Latin American Politics and Government*.

† Secure major or graduate status is required in all third-group courses.

241-42 *Seminar: Place and Culture* (3-3)

A study of the culture traits which characterize various ethnic groups and differentiate people-place associations. (1965-66 and alternate years.)

243 *Seminar: Political Geography of Western Europe* (3)

Van Valkenburg

Discussions centering on the political entities of Western Europe: their structure and character, their interplay, their problems. (Summer 1964.)

Alexander*

244 *Seminar: Western Europe in the North Atlantic Community* (3)

Western Europe's role in the North Atlantic Community, geographic backgrounds, forces for unity and diversity in Western Europe and in the community. (Summer 1964.)

Allen*

245 *Seminar: the Strategic Importance of Western Europe* (3)

Analysis of the economic factors which underpin Western Europe's present and potential strategic importance; the military and political factors of her power position in the world setting. (Summer 1964.)

253-54 *Seminar: Problems of Developing Nations* (3-3)

Traditional societies and their disruption; modernization, social change, and economic development; problems of urban and regional planning; foreign aid programs. (1965-66 and alternate years.)

Petrov

265-66 *Seminar: the Sino-Soviet Area* (3-3)

Natural resources and economic potentials of the Sino-Soviet Bloc with emphasis on Sino-Soviet borderlands. Resources and population pattern of the border regions—Szechuan, Outer Mongolia, Inner Mongolia, Manchuria, Soviet Central Asia and the Far East, North Korea, and North Vietnam—will be surveyed. (Academic year—evening.)

The Staff

295-96 *Research* (3-3)

(Academic year—as arranged.)

The Staff

299-300 *Thesis* (3-3)

GEOLOGY

1-2 *Introductory Geology* (3-3)

Lecture (2 hours), laboratory and field trip (2 hours). A survey course covering the principles of geology. Laboratory fee, \$6 a semester. (Academic year—day; summer 1964.)

The Staff

GERMANIC LANGUAGES AND LITERATURES

1-2 *First-year German* (3-3)

A year course; credit is not given for the first half until the second half is completed. The essentials of German grammar; translation of easy prose. Three classroom periods a week plus one period of audio and practice in electronic language workshop. Workshop fee, \$6 a semester. (First half: fall—day and evening; spring—day; summer 1964. Second half: fall—day; spring—day and evening; summer 1964.)

The Staff

3-4 *Second-year German* (3-3)

A year course; credit is not given for the first half until the second half is completed. Selections from modern German prose; continuation and review of grammar. Three classroom periods a week plus one period of audio and practice in electronic language workshop. Workshop fee, \$6 a semester. Prerequisite: German 1-2 or two years of high school German. (First half: fall—day and evening; spring—day; summer 1964. Second half: fall—day; spring—day and evening; summer 1964.)

The Staff

* Also offered for summer 1964.

- 5.6 *Intensive First-year German* (5-5) The Staff
A year course; credit is not given for the first half until the second half is completed. This course covers the same material as German 1-2, with greater depth because of additional attention to conversation, comprehension, reading, and writing. Five classroom periods a week plus one period of audio-oral practice in electronic language workshop. Workshop fee, \$6 a semester. (Academic year—day.)
- 7.8 *Intensive Second-year German* (5-5) The Staff
A year course; credit is not given for the first half until the second half is completed. This course covers the same material as German 3-4, with greater depth because of additional attention to conversation, comprehension, reading, and writing. Five classroom periods a week plus one period of audio-oral practice in electronic language workshop. Workshop fee, \$6 a semester. (Offered 1965-66.)
- 9.10 *German Conversation and Composition* (3-3) Osterle
Audio training, oral practice in electronic language workshop. Workshop fee, \$6 a semester. (Academic year—day.)
- 57 *Beginning German for Reading Examination Candidates* (0) The Staff
Specialty for graduate students with little or no German, who are preparing for reading examinations. No academic credit. Tuition fee, \$108. (Fall and spring—evening; summer 1964.)
- 49 *German Readings for Nonmajor Students* (3) The Staff
Primarily for graduate students preparing for reading examinations. Undergraduates admitted with permission of the instructor. No academic credit for graduate students. Prerequisite: German 4 or 47, or the equivalent. (Fall and spring—evening; summer 1964.)

HISTORY

FIRST GROUP

- 71.41 *The Development of European Civilization in Its World Context* (3-3) Kayser, Herbert Kenny
Primarily for freshmen. *First half:* the political, social, economic, and cultural history of the Old World from ancient times to 1715. *Second half:* from 1715 to the present. (Academic year—day and evening; summer 1964.)
- 71.72 *The Development of the Civilization of the United States* (3-3) Haskett, Hill
Primarily for sophomores. *First half:* the political, social, economic, and cultural forces of the United States in their world setting from 1492 to 1895. *Second half:* from 1895 to the present. (Academic year—day and evening; summer 1964.)

SECOND GROUP*

- 105-6 *Introduction to the History of Science* (3-3) Malchauf
First half: the ancient natural philosophy and the growth of special sciences through the 15th-18th century scientific revolution. *Second half:* the main lines of development of astronomy, physics, chemistry, biology, and medicine from the mid-19th century to the scientific revolution of the early 20th century. Prerequisite: History 39-46 or a background in science. (Academic year—evening.)
- 106.10 *Ancient History* (3-3) Kayser
The political, social, and intellectual aspects will be considered. *First half:* the ancient Near East and Greece. *Second half:* Rome. (Academic year—day.)

* History 39-46 is prerequisite to courses 106 through 121 and 307 through 309. History 11-32, to which 13 through 160, either History 39-46 or 11-12, or History 33 through 35.

111-12 *Medieval History* (3-3)

The political, social, and intellectual aspects will be considered. *First half:* from the 4th to the 12th century. *Second half:* from the 13th through the 16th century. (Not offered 1964-65.) Kayser

130 *Nationalism* (3)

The historical evolution of modern nationalism. (Summer 1964.) Kayser

131-32 *History of Germany* (3-3)

The political, social, and cultural development of the German people. *First half:* from the Reformation to 1871. *Second half:* from 1871 to the present. (Academic year - day.) Herber

141-42 *History of France* (3-3)

A survey of the political, social, and cultural history of France. *First half:* from earliest times to 1815. *Second half:* from 1815 to the present. (Not offered 1964-65.) Herber

145-46 *History of Russia* (3-3)

An 1100-year survey of the rise and revolution of Russia. *First half:* Russia under the Old Regime, 860-1900. *Second half:* Revolution and Soviet rule, 1900-1960. (Academic year—day.) Thompson

147 *Economic History of Europe* (3)

European economic development since the Middle Ages with particular emphasis on the period following the Industrial Revolution. The evolution of capitalism and its varying impact upon the societies of Europe will be treated. (Fall—day.) Sharkey

149-50 *European Diplomatic History* (3-3)

Background of the European state system and of diplomatic practices and relations since the Congress of Vienna, with emphasis on the policies and actions of the great powers and their statesmen. *First half:* to 1878. *Second half:* since 1878. (First half, 1965-66 and alternate years. *Second half:* spring—evening.) Davison

151-52 *History of England and Great Britain* (3-3)

A general survey of the development of English civilization and its impact on Western culture. *First half:* to 1600. *Second half:* since 1600. (Academic year—day and evening; summer 1964.) Kenny

161 *Ancient Americans* (3)

A study of the Maya, Aztec, Inca, and other early civilizations of North and South America. (Fall—day.) Davis

162 *Iberian Background of Latin America* (3)

History of Spain and Portugal, with emphasis on developments leading to the rise and decline of the Spanish and Portuguese empires. (Not offered 1964-65.) Davis

163 *Colonial Latin America* (3)

Political, economic, social, and institutional developments in Spanish and Portuguese America from the conquest through the wars of independence. (Fall—evening.) Davis

164 *South America since Independence* (3)

Development of the independent South American states in the 19th and 20th centuries. (Alternate spring and summer terms; spring—day; summer 1964.) Davis

166 *Mexico and the Caribbean since Independence* (3)

A survey of the republics of Mexico, Central America, and the Caribbean islands. (Alternate spring and summer terms; summer 1965; spring 1966.) Haskett

170 *American Colonial History* (3)

The settlement of the British colonies, the development of provincial institutions, and the emergence of an American civilization in the 17th and 18th centuries. (Spring—day; summer 1964.) Haskett

- 171-72 *Social History of the United States* (3-3) Gray
Daily life, institutions, intellectual and artistic achievements of the Agrarian Era, 1607-1861; and the Urban Industrial Era, 1861 to the present time. (Academic year—morning; summer 1964.)
- 173 *Representative Americans* (3) Gray
A biographical approach to national history. Some fifty significant and pivotal personalities in the development of the United States in government, business, science, religion, journalism, the arts, and social reform. (Fall—day.)
- 174 *Economic History of the United States* (3) Sharkey
An analysis of the process of economic growth in the United States from Colonial times to the present. The development of various sectors in the economy such as agriculture, transportation, manufacturing, and banking will be treated and their interdependence stressed. (Spring—day.)
- 175-76 *Political and Constitutional History of the United States* (3-3) Haskett
First half: to the eve of the Civil War. Second half: the Civil War to 1940. (Academic year—day; summer 1964—History 175 (3).)
- 177 *The South* (3) Robertson
Rise of the plantation system and slavery; the sectional conflict; and the problems and progress of the New South. (Spring—day.)
- 179 *The Civil War* (3) Robertson
A survey of the causative factors leading to Civil War and of the social, political, military, economic, and diplomatic aspects of the War itself; the immediate and long range effects of the War on American life. (Fall—day.)
- 181-82 *Diplomatic History of the United States* (3-3) Merriman, Hill
Tendencies toward isolation, expansion, and collectivism; disputes with foreign countries and their settlement; and the activities of the American secretaries of state and diplomatic agents. First half: to 1898. Second half: since 1898. (Academic year—day and evening.)
- 183 *Overseas Expansion of the United States* (3) Merriman
The political, economic, social, and cultural life of our outlying possessions. (Spring—day.)
- 184 *Canada and the United States* (3) Merriman
The historical background and main trends in the relationship of the two English-speaking peoples of North America. (Fall—day.)
- 187 *History of Modern China* (3) Gasster
China since 1840, with particular attention given to political developments. (Fall—day; summer 1964.)
- 188 *East Asia in World Affairs* (3) Gasster
The history of Chinese and Japanese relations with the West emphasizing the roles of China and Japan in international politics from the middle of the 19th century to the present. (Spring—day.)
- 190 *History of India* (3) Thompson
The civilization of India and her neighbors from the beginnings to independence. Not offered 1964-65.)
- 191-92 *Current History* (1-1)
Contemporary events in their world setting. (Not offered 1964-65.)
- 193 *History of the Near East* (3) Davison
The Byzantine, Arab, Persian, and Islamic backgrounds of Near Eastern history; the rise and decline of the Ottoman Empire; the action of European powers in the area; and the Ottoman breakup into the Turkish Republic and other successor states. 1964-65 and alternate years, fall—evening.)

- 195-96 *History of East Asia* (3-3) Gasster
The civilizations of China and Japan, with emphasis on cultural development and social organization. First half: from the beginnings to about 1800. Second half: the transition to modern societies on the eve of the modern era, and their responses to Western cultural influences since the middle of the 19th century. (Academic year—day and evening; summer 1964—History 196 (3).)
- 197-98 *Proseminar in Latin American Civilization* Davis, Robb, Sammons
 (3-3)
 Reading course for coordination and review. Open only to majors in Latin American Civilization. (Academic year—as arranged.)
- 199-200 *Proseminar: Readings for the History Major* Thompson, Gray
 (3-3)
 Limited to majors in History. Readings and discussions on main trends in the history of Western civilization, in its world setting, including representative selections from the classics of historical literature. (Academic year—day and evening.)

THIRD GROUP*

- 211-12 *Reading Course in Medieval History* (3-3) Herber
 Primarily for graduate students. (Not offered 1964-65.)
- 213-42 *Seminar in Modern European History* (3-3) Davison
 (Academic year—evening.)
- 243 *Reading Course in Modern European History* (3) Thompson
 For graduate students. (Fall—day.)
- 245-46 *Seminar: European History* (3-3) Thompson
 (Academic year—day.)
- 247-48 *Reading Course in Russian History* (3-3) Davison
 For graduate students. (Academic year—evening.)
- 249 *Seminar: European Diplomatic History* (3) Kenny
 (Spring—day.)
- 251-52 *Seminar: English History* (3-3) Davis
 (Academic year—day.)
- 261-62 *Seminar: Latin American History* (3-3) Gray
 (First half; not offered 1964-65. Second half; spring—day.)
- 271-72 *Seminar: Social History of the United States* (3-3) Gray
 (Academic year—day.)
- 273-74 *Reading Course in American Social History* (3-3) Haskett
 (First half; spring—day. Second half; not offered 1964-65.)
- 275-76 *Seminar: American Political and Constitutional History* Haskett
 (3-3)
 (Academic year—evening.)
- 277-78 *Reading Course in American Political and Constitutional History* (3-3) Sharkey
 For graduate students. (First half: 1964-65 and alternate years: fall—day. Second half: 1965-66 and alternate years—as arranged.)
- 279-80 *Reading Course in Economic History* (3-3)
 (Academic year—evening.)

* Approval of the instructor is required for registration in each third-group course.

- 281-82 *Seminar: Diplomatic History of the United States* (3-3) Merriman
(Academic year—day.)
- 285-86 *Reading Course in American Diplomatic History* (3-3) Merriman
For graduate students. (Academic year—as arranged.)
- 287 *Seminar: Background of the Chinese Revolution** (3) (JAU)
To be offered at the downtown campus of American University, as course number 55.668. (Fall—evening.)
- 291-92 *Seminar* (3-3) The Staff
Prerequisite: approval of the Department. (Academic year—as arranged; summer 1964—History 292 (3).)
- 294 *Seminar: History of the Modern Near East* (3) Davison
(Fall—evening.)
- 295-96 *Seminar: History of the Modern Far East* (3-3) Gasster
(Academic year—day.)
- 299-300 *Thesis* (3-3) The Staff
Required of all candidates for the Master's degree specializing in history. (Academic year—as arranged; summer 1964.)

MATHEMATICS†

- College Algebra (3) The Staff
Exponents and logarithms; linear equations; complex numbers; quadratic equations; introduction to theory of equations; mathematical induction and the binomial theorem; permutations, combinations, and probability; determinants; progressions. Prerequisite: one year each of high school algebra and high school geometry. (Fall and spring—day and evening; summer 1964.)
- Pure Trigonometry (3) The Staff
Prerequisite: two years of high school algebra and one year of high school geometry, or Mathematics 3 (or concurrent registration thereof). (Fall and spring—day and evening; summer 1964.)
- General Mathematics I (3) The Staff
For those students in the School of Education or others electing Mathematics 9 and 10 as a technical sequence in mathematics. Proportional logic and truth values; the number system; number bases; computational computation; algebraic functions; topics from plane geometry. Prerequisite: two years of high school mathematics. Not open to students who have had former Mathematics 2. (Fall and spring—day and evening; summer 1964.)
- General Mathematics II (3) The Staff
An introduction to matrices and vector spaces; non-Euclidean geometry; introduction to concepts of the calculus. Prerequisite: Mathematics 9 or former 2. (Fall—evening; spring—day and evening; summer 1964.)
- Finite Mathematics I (3) The Staff
Both value computations and switching circuits, partitions and counting, probability theory. Prerequisite: two years of high school mathematics. (Fall—day and evening; spring—summer 1964.)

* Offered jointly by The George Washington University and American University. Class offered at AU will be designated "JAU" (GW) unless noted at this University.

† Free students registering for Mathematics 9, 6, 9, 10, 11, or 12 are required to take a placement examination.

16 *Finite Mathematics II* (3)

Vectors and matrices, mathematics of finance and accounting, linear programming, introduction to game theory. Prerequisite: Mathematics 15. (Spring—day and evening; summer 1964.)

The Staff

21 *Calculus I* (3)

Elementary concepts of analytic geometry. Differentiation and integration of algebraic functions with applications. Prerequisite: Mathematics 3 and 6; or two years of high school algebra, one year of high school geometry, and one-half year of high school trigonometry; or the equivalent. (Fall and spring—day and evening; summer 1964.)

The Staff

22 *Calculus II* (3)

Differentiation and integration of transcendental functions and applications, topics in analytic geometry, techniques of integration. Prerequisite: Mathematics 21. (Fall and spring—day and evening; summer 1964.)

The Staff

23 *Calculus III* (3)

Vector concepts, improper integrals, polar coordinates, and infinite series. Prerequisite: Mathematics 22. (Fall and spring—day and evening; summer 1964.)

The Staff

24 *Calculus IV* (3)

Multiple integration and partial differentiation with applications, vectors and solid geometry, differential equations. Prerequisite: Mathematics 23. (Fall and spring—day and evening; summer 1964.)

The Staff

27 *Calculus I and II* (6)

The equivalent of Mathematics 21 and 22. (Fall—day.)

The Staff

28 *Calculus III and IV* (6)

The equivalent of Mathematics 23 and 24. (Spring—day.)

The Staff

PHILOSOPHY

51-52 *Introduction to Philosophy* (3-3)

A critical introduction to the problems of modern philosophy in relation to scientific and social developments since the Renaissance. This course is not merely intended as an introduction to those courses in philosophy which follow but is a unit complete in itself for those students in other departments interested in the problems of philosophy relevant to modern thought. (Academic year—day and evening; summer 1964.)

The Staff

PHYSICS

1-2 *General Physics* (4-4)

Lecture (2 hours), recitation (1 hour), laboratory (2½ hours). Principal phenomena of classical and modern physics. *First half:* a study in depth of selected topics in classical physics which form a foundation for and lead to an understanding of modern physics. *Second half:* the fundamental concepts of atomic, nuclear, solid state, and related fields of modern physics. Prerequisite: two years of college preparatory mathematics or concurrent registration in Mathematics 6. Material fee, \$11 a semester. (*First half,* fall—day and evening; spring—day. *Second half:* spring—day and evening.)

The Staff

11 *Introductory Physics* (3)

An introduction to the phenomena of light, heat, force, energy; vectors; the properties of matter. This course may be taken as a terminal course by non-science students who wish an introduction to the physical sciences. Prerequisite: high school algebra and plane geometry. Material fee, \$11. (Offered last time—summer 1964.)

Koehl and Staff

12 *Introductory Physics* (3)

Mechanics, wave-motion, and sound. Prerequisite: Physics 11. Material fee, \$11. (Offered last time—summer 1964.)

Harrison and Staff

- 13 *Introductory Physics* (3) Harrison and Staff
Lecture (1 hour); recitation (1 hour); laboratory (2½ hours). Elementary electricity and magnetism. Prerequisite: Physics 11. Material fee, \$11. (Summer 1964. Offered last three fall 1964—day and evening.)
- 15 *General Physics* (3) Hobbs and Staff
Lecture (1 hour); recitation (1 hour); laboratory and computer (2½ hours). Electricity and magnetism. Prerequisite: Physics 11. Material fee, \$11. (Offered last three fall 1964—day and evening.)

POLITICAL SCIENCE

FIRST GROUP

- 1 *Introduction to Government** (3) The Staff
Basic principles and problems of political life; theories, forms, and processes of government in the United States and foreign countries. Attention is also given to international relations. (Fall—evening; spring—day; summer 1964.)
- 2-10 *Government of the United States** (3-3) The Staff
First half: structure, powers, and operation of the Federal Government: Congress, the President, and the Supreme Court; elections, political parties, and pressure groups. Second half: state and local government; civil rights; major functions of government at federal, state, and local levels. (First half: fall—day and evening; spring—day; summer 1964. Second half: fall—day; spring—day and evening; summer 1964.)

SECOND GROUP*

- 104 *State and Local Governments* (3) LeBlanc
State, municipal, and other local governmental forms, operations, and problems, with attention to policy formulation and administration, and to the forces of practical politics. (Spring—day.)
- 107 *Problems in Modern Political Thought* (3) Kraus
Development of democratic political institutions and analysis of the main challenges to constitutional democracy in the 19th and 20th centuries. (Not offered 1964-65.)
- 111 *Introduction to Comparative Government and Politics* (3) Smart
Government and politics of the principal constitutional democracies of Western Europe, Great Britain and France. (Fall—day.)
- 112 *Introduction to Comparative Government and Politics* (3) Smart
Government and politics of the principal political systems of Central and Eastern Europe, Germany and the Soviet Union. (Spring—day.)
- 113 *Political Problems of the British Commonwealth of Nations* (3) Kraus
From Colonial Empire to modern Commonwealth; questions of equal partnership; government and politics in the principal Commonwealth states; problems of new states in Asia and Africa. (Not offered 1964-65.)
- 117-18 *Political Theory, the Nature and Growth of Political Thought* Kraus
in the West (3-3)
First half: from Classical Antiquity to the Middle Ages, the origins of the western political tradition. Second half: from the Renaissance and Reformation to present times. Theoretical foundations of the modern state; society and politics; sovereignty, absolutism, and resistance; Liberalism, democracy, and conservatism. (Available year—evening.)

* Six hours of first-group Political Science courses are required for all students entering the School.

- 119-20 *Foundations of American Democracy* (3-3) Morgan
Introduction to political thought in the United States from colonial times to the present. (Academic year—evening; summer 1964—Political Science 119 (31).)
- 121-22 *The Constitution of the United States* (3-3) West
Judicial power of federal courts in constitutional interpretation. *First half:* emphasis on separation of powers, federal state relationships, and taxation. *Second half:* emphasis on constitutional protection of civil rights. (Academic year—evening.)
- 125 *Legislative Organizations* (3) Riddick
A study of Congress: constitutional aspects, legal analysis of make-up, and political organization. Political and parliamentary procedures used in the preparation and enactment of legislation. (1965-66 and alternate years.)
- 141 *The Development of Legal Institutions* (3) Brewer
Introduction to historical jurisprudence: primary attention to the origins of the Roman Law of Continental Europe and of the Anglo-Saxon Common Law. (Fall—day.)
- 145 *Political Parties and Politics* (3) LeBlanc
Organization and operations of political parties in the United States: major and minor parties, bosses and corruption, nominating and elections, influence on President and Congress. (Fall—evening; summer 1964.)
- 146 *Political Pressures and Public Reactions* (3) Ludden
Public opinion, special interest lobbies, and pressure groups as they operate on government to influence public policy. (Spring—evening.)
- 151-52 *Public Administration* (3-3) LeBlanc
Introductory survey of the theory and practice of governmental administration and its relation to politics, legislation, the courts, and nongovernmental organizations and institutions. (Academic year—day.)
- 157-58 *Current Problems in Domestic Politics* (1-1) Slayman
Analysis of outstanding contemporary issues in internal American politics with discussion of problems and policies. (Academic year—evening.)
- 171 *International Politics* (3) Purcell, Nimer
Basic forces underlying the conduct of international relations and the formation of foreign policy; power politics, imperialism, collective security, and international cooperation. (Fall—day and evening; summer 1964.)
- 172 *Organization and Function of the United Nations* (3) Purcell
(Formerly International Organization, the United Nations)
Development and current operation of international organization within the system of sovereign states with emphasis on the United Nations. (Spring—day and evening; summer 1964.)
- 177 *Recent Trends in Latin American Politics and Government* (3) Davis
Types of government, recent developments, and current political conditions in each of the twenty Latin American republics. (Fall—day; summer 1964.)
- 178 *International Politics in the Western Hemisphere* (3) Davis
Political relations of the American Republics in the 19th and 20th centuries, the development of Pan Americanism and the Organization of American States. (Spring—day.)
- 181-82 *Survey of Public International Law and Organization* (1-3) Brewer
(Formerly International Law)
Survey of the public law of nations with emphasis on the law of peace. Neutrality and the so-called law of war receive attention in the second semester. (Academic year—day and evening.)
- 187-88 *Current Problems in International Politics* (1-1) Slayman
Analysis of outstanding contemporary international issues with discussion of problems and policies. (Academic year—evening.)

- 191 *Politics of the Middle East* (3) Nimer
Domestic and international politics of Turkey, Iran, Israel, and the Eastern Arab States and Principalities. Special attention to the specifically regional aspect of the foreign policies of these countries. (Fall—day.)
- 192 *Politics of North and Central Africa* (3) Nimer
Domestic and international politics of the Western Arab States, Ethiopia, Somalia, Liberia, and the newly independent states of former British, French, and Belgian Africa. Special attention to the specifically regional aspect of the foreign policies of these countries. (Spring—day.)
- 194 *Far Eastern Politics: Contemporary International Relations in the Pacific Area* (3)
Background and development of the major states of East Asia with attention to the constitutional systems and the foreign policies of the region. (Spring—evening.)
- 197 *Proseminar in International Affairs: Strategies of Contemporary American Foreign Policy* (3) Nimer
Analysis of diplomatic, economic, psychological, and military problems of United States foreign policy. Readings, term papers, and discussion. Primarily for seniors in the International Affairs curriculum; open to a limited number of other qualified students. (Fall—evening; spring—day.)

THIRD GROUP

- 209-10 *Seminar: the Federal Government of the United States* (3-3) West
Advanced research including the legislative problems of Congress; relations of Congress with the Administration; constitutional and political powers of the President, the Cabinet, and the Executive Office of the President; the practical politics of the presidency; and presidential policy leadership and control. (Academic year—evening.)
- 212 *Seminar: Comparative Government and Politics* (3) Stout
Selected topics and problems on comparative political and administrative institutions and the politics of modern constitutional governments and states. Each semester is devoted to a selected country or significant institutional or policy problem. Attention will be directed to questions of method. (Spring—evening.)
- 213 *Readings in Comparative Government and Politics* (3) Stout
Readings and group discussions on methodological questions, comparative political and administrative institutions with attention to legislatures, the changing role of the executive, political parties, constitutional and totalitarian approaches to public management and public service, the role of the military, etc. (Fall—evening.)
- 217 *Seminar: Topics in Political Theory* (3) Kraus
Research and discussion on problems of modern political and constitutional theory, the critical aspects of representative government, democracy, socialism, and totalitarianism. Each semester is devoted to a separately announced topic, such as socialism and communism, theories of resistance and revolution, problems of democratic theory. (Spring—evening.)
- 220 *Reading Course in Political Theory* (3) Kraus
Readings and group discussions, principally on modern political and constitutional theory since the 17th and 18th centuries. (Fall—evening.)
- 221-22 *Seminar: United States Constitution and the Judicial Function* (3-3) Morgan
A study of constitutional interpretation as an aspect of the political process. (Academic year—evening.)

235 Metropolitan Problems (3)

Bain

Growth of American cities and changing land use patterns in relation to internal transportation systems. The respective roles of the private automobile and of public transportation. The problems of financing and administering public transportation systems under public and private ownership. (Fall—evening.)

245-46 The American Political Process: Political Parties and Interest Groups (3-3)

LeBlanc

First half: meetings and group discussions on the nature and functions of political parties and the role and techniques of political interest groups. Second half: seminar on selected topics of American politics requiring the use of basic research materials. (Academic year—evening.)

271-72 Problems in International Politics and Organization (3-3)

Purcell

A seminar to develop techniques of research in recent international affairs and to examine developments in international politics and organizations. (Academic year—evening.)

273 Public Opinion and Foreign Policy (3)

Ladden

Development, organization, and operation of international information programs by major world powers. Public opinion in the United States influencing the formation and conduct of foreign policy. (Fall—evening.)

274 Methods and Objectives of Foreign Policy (3)

Hadsel

Examination of the objectives of foreign policies of the major powers, with attention to political, economic, and military methods used to pursue these objectives. (Spring—evening.)

275 International Relations: Concepts and Approaches (3)

Hadsel

An examination of the principal approaches to international relations and the theories underlying this field of study. (Fall—evening.)

277 Seminar: Latin American Government (3)

Davis

Analysis of the political structures of selected Latin American republics. Comparable governments studied each year. (Fall—evening.)

278 Seminar: Latin American Political Philosophy (3)

Davis

Research in political personalities and philosophies of 19th and 20th century Latin America. (Spring—evening.)

279 Reading Course in International Politics (3)

Nimer

Advanced readings in the substantive and methodological literature of international politics. (Fall—evening; summer 1964.)

281-82 Seminar: International Law and Relations (3-3)

Brewer

Research in the public law of nations, with special attention to problems of pacifism, settlement, sanctions, war, neutrality, and state jurisdiction, and to their political implications. (Academic year—day.)

290 Reading Course in African International Politics (3)

Nimer

Readings and discussions on selected topics in the international politics of Africa: intra-African regional relations, political unions, the African states and the extra-continental world. (Spring—evening.)

292 International Politics and Government in the Middle East (3)

Nimer

Research and analysis of the international relations and major political problems of the Arab world and adjacent areas. (Spring—evening.)

293-94 Seminar: International Politics and Government in the Pacific Area (3-3)

Research and analysis of the major patterns of development in internal and international politics of the area, with advanced study of the governmental institutions of the Far East. (Academic year—evening.)

295-300 Thesis (3-3)

(Academic year—as arranged; summer 1964.)

The Staff

INSTITUTE FOR SINO-SOVIET STUDIES

- 215-16 Seminar: *the Sino-Soviet Alliance in World Affairs I-II* (3-3)
 224 *Readings in Socialism and Communism* (3)
 225 Seminar: *Theoretical Problems of Marxism-Leninism* (3)
 227 Seminar: *the Politics of Eastern Europe* (3)
 230 Seminar: *Operational Techniques of International Communism* (3)
 231 Seminar: *the Sino-Soviet Conflict* (3)
 232 Seminar: *International Communism—the Sino-Soviet Orbit* (3)
 233 Seminar: *Soviet Government and Politics* (3)
 234 Seminar: *Soviet Internal Policy* (3)
 237 *Chinese Law* (3)
 238 *Soviet Law* (3)
 253 Seminar: *Chinese Government and Politics* (3)
 256 Seminar: *the Politics of North Korea and North Vietnam* (3)
 264 Seminar: *Sino-Soviet Relations with South Asia* (3)
 269 Seminar: *the Soviet Foreign Policy Process* (3)
 270 Seminar: *Soviet Foreign Policy* (3)
 288 Seminar: *Soviet Military Policy and Strategy* (3)
 295 Seminar: *China in the Communist Bloc* (3)
 296 Seminar: *the Communist Bloc in Far Eastern International Politics* (3)
 298 Seminar: *Sino-Soviet Relations with Southeast Asia* (3)

COURSES OFFERED IN SPECIAL PROGRAMS

In addition to the regular courses announced above, the University offers political science courses listed below for students in the following special programs: Air Force Advanced Management Program, the War College Programs.

- 280 *Fundamentals of National Power** (3)
 262 *National Security Policy of the United States** (3)
 283 *Topics in International Law* (3)
 285 *Diplomacy Since World War II* (3)
 287 *American Military Policy* (3)
 297 *Readings in International Affairs** (1 to 2)

PSYCHOLOGY

FIRST GROUP

- 299 *General Psychology†* (3)

The fundamental principles underlying human behavior.

The Staff
(Fall and spring—day and

* Limited to students in the Master of Arts in International Affairs program at the Army War College, National War College, Air War College, and Naval War College.
 † Prerequisites 1 to 4-6 is preferred to all other courses in psychology.

5-6 Principles and Methods of Psychology* (3-3)

Walk and Staff

Lecture (2 hours), laboratory (2 hours). An experimental approach to the understanding of behavior. A variety of individual and class experiments are performed. Required of all psychology majors, who should take the course early in the major. May be taken without Psychology 1. *First half:* awareness, discrimination, sensation, perception, and emotions and their relation to adaptive behavior. *Second half:* topics of motivation, learning, memory, and problem solving. (Academic year—day and evening.)

8 Psychology of Adjustment (3)
(Formerly Psychology 4)

The Staff

Processes involved in the total adjustment of the individual with emphasis on social environment; development in the individual of adjustment techniques. (Fall and spring—day and evening; summer 1964.)

SECOND GROUP†**129 Motivational Factors in Personality (3)**

Kirkbride

(Formerly Introduction to Counseling)
A survey of basic principles and assessment techniques, with emphasis on applications to counseling. (Fall—evening; summer 1964.)

131 Psychological Tests (3)

Hunt

A survey of psychological tests and their more common uses in business, industry, government, law, medicine, and education. Material fee, \$7. (Fall—day; spring—evening; summer 1964.)

144 Personnel Psychology (3)

Mosel

Psychological concepts and techniques in personnel management and supervision. Applications to government, industry, and military organizations. (Fall and spring—evening.)

156 Psychology of Propaganda and Public Opinion (3)

Tutill

The psychology of opinion formation, the measurement of opinion, the social determinants of attitudes, the psychological processes in propaganda, the biases of receptivity of propaganda, psychological warfare. (1964-65 and alternate years: spring-evening.)

THIRD GROUP**231 Test Construction (3)**

Mosel

The principles underlying test construction; statistical techniques in the construction, evaluation, and standardization of psychological, educational, and vocational tests. Prerequisite: a course in tests and measurements and an elementary course in statistics. (1964-65 and alternate years.)

233 Individual Psychological Testing (3)

E. Johnson

Instruction and practice in giving of the Binet and Wechsler tests. Prerequisite: an elementary course in tests and measurements. Material fee, \$7. (Fall and spring—day.)

234 Seminar: Test Theory (3)

Mosel

Development of the axiomatic-deductive theory underlying the major notions in the construction, evaluation, and application of psychological tests. (1964-65 and alternate years: fall—evening.)

* Psychology 1 or 5-6 is prerequisite to all other courses in Psychology.
† Six credits in first-group courses are prerequisite to all second-group courses.

- 237 *Seminar: Psychological Measurement* (3) Hunt
Advanced instruction in the use and interpretation of psychological tests, with emphasis upon group tests, survey of recent research in psychological measurement. Prerequisite: a course in psychological or educational measurement. (1964-65 and alternate years; spring-evening.)
- 244 *Seminar: Job and Worker Analysis* (3) Maslow
An examination of the principles, techniques, and research findings in the description of work performed and in the analysis of qualifications requirements. (Summer 1964.)
- 245 *Seminar: Employee Motivation and Morale* (3) Mosel
An analysis of organizational behavior, especially with regard to motivation and productivity. The implications of recent research on employee attitudes, the primary areas, the effects of various patterns of supervisory leadership, the role of formal and informal organization, and job design. (Spring-day and evening; summer 1964.)
- 246 *Seminar: Personnel Measurement Techniques* (3) Mosel
Detailed consideration of the techniques of personnel selection and performance evaluation. The use of employment tests, personal data, assessment interviews, and performance ratings. (1965-66 and alternate years.)
- 259 *Seminar: Social Psychology of Communism* (3) White
Psychological aspects of authoritarian systems and of all-embracing political ideologies; methods and findings in the study of public opinion in the USSR and its satellites; problems of Western communications with the USSR; the nature of Communist propaganda and the progress of Communism in non-Communist countries. Especially for students in the Institute for Soviet-Satellite Studies. (Fall-evening.)
- 261 *Seminar: International Communication* (3) Mosel
The process of communication and changing attitude change across cultures and time by means of mass media. Special emphasis is given to the role of psychoanalytical factors and the functions of mass communication in the development of international relations. Especially for students in the School of Government, Business, and International Affairs. (1964-65 and alternate years; spring-evening.)
- 262 *Behavioral Factors in Social Change* (3) Lippitt
Current research and theory related to the process of social change. Basic principles of planned change will be discussed with individual, group, organization, community, and cultural change. Human factors in the change process will be emphasized. Especially for students in the Center for Behavioral Sciences. (Spring-evening.)
- 264 *Sensitivity Training: Human Relations Laboratory Course* (3) Lippitt
A sensitivity learning experience in human relations. The course is both around an unstructured group experience with instructions for individual feedback, experiential, and practice. The goal of the course is the development of self-knowledge, group social sensitivity, and diagnostic skills in human relations. Prerequisite: 6 semester hours in psychology or sociology. Especially for students in the Center for Behavioral Sciences. (Fall and spring-evening.)
- 265 *Theory and Design in Human Relations Training* (3) Lippitt
Designed for those interested or involved in conducting human relations training. Theories of learning are reviewed. The laboratory approach to human relations training is explored in depth. Practice in designing, developing training skills, and evaluating training. Prerequisite: Psychology 264 or a human relations laboratory learning experience. Especially for students in the Center for Behavioral Sciences. (1965-66 and alternate years.)

ROMANCE LANGUAGES AND LITERATURES

*French***1-2 First-year French (3-3)**

The Staff

A year course; credit is not given for the first half until the second half is completed. For beginners. Pronunciation, conversation, grammar, composition, reading of modern French prose. Aural training oral practice in electronic language workshop. Workshop fee, \$6 a semester. (First half: fall and spring—day and evening; summer 1964. Second half: fall and spring—day and evening; summer 1964.)

2X First-year French (3)

Riggs and Staff

An intensive course to which are assigned entering students with one or more years of high school French whose placement tests show them inadequately prepared for the regular work of French 3. The course meets six hours a week (3 hours of lecture, 2 hours of drill, and 1 hour of workshop) and carries 3 semester hours of credit. The total fee is \$133 (the tuition fee of \$100 plus an additional fee of \$25) plus workshop fee, \$6. (Fall and spring—day.)

3-4 Second-year French (3-3)

The Staff

A year course; credit is not given for the first half until the second half is completed. Conversation, grammar, composition, reading in modern French prose, introduction to French civilization. Aural training, oral practice in electronic language workshop. Workshop fee, \$6 a semester. Prerequisite: French 1-2. FX. or two years of high school French. (First half: fall and spring—day and evening; summer 1964. Second half: fall—day; spring—day and evening; summer 1964.)

9-10 French Conversation and Composition (3-3)

The Staff

Prerequisite: French 4 or the equivalent and permission of the instructor. (A year course—day and evening; summer 1964.)

49 French Readings for Nonmajor Students (3)

Lawton and Staff

Primarily for graduate students preparing for reading examinations. Undergraduate students may enroll only with specific permission of the instructor. No academic credit for graduate students. (Fall and spring—evening; summer 1964.)

51-52 Survey of French Literature and Civilization (3-3)

Maxwell

The social, artistic, and cultural background of French civilization. Lectures, readings, recitations, and informal discussions. (A one-year—day and evening; summer 1964.)

*Spanish***1-2 First-year Spanish (3-3)**

The Staff

A year course; credit is not given for the first half until the second half is completed. For beginners. Pronunciation, conversation, grammar, composition, reading of modern Spanish prose. Aural training, oral practice in electronic language workshop. Workshop fee, \$6 a semester. (First half: fall and spring—day and evening; summer 1964. Second half: fall and spring—day and evening; summer 1964.)

2X First-year Spanish (3)

Neyman and Staff

An intensive course to which are assigned entering students with one or more years of high school Spanish whose placement tests show them inadequately prepared for the regular work of Spanish 3. The course meets six hours a week (3 hours of lecture, 2 hours of drill, and 1 hour of workshop) and carries 3 semester hours of credit. The total fee is \$133 (the tuition fee of \$100 plus an additional fee of \$25) plus workshop fee, \$6. (Fall and spring—day.)

3-4 **Second-year Spanish (3-3)**

The Staff

A year course; credit is not given for the first half until the second half is completed. Conversation, grammar, composition, reading of modern Spanish prose, introduction to Hispanic civilization. Aural training, oral practice in electronic language workshop. Workshop fee, \$6 a semester. Prerequisite: Spanish 1-2, 2X, or two years of high school Spanish. (First half: fall and spring—day and evening; summer 1964. Second half: fall—day; spring—day and evening; summer 1964.)

9-10 **Spanish Conversation and Composition (3-3)**

The Staff

Prerequisite: Spanish 4 or the equivalent and permission of the instructor. (Autumn year—day and evening; summer 1964.)

4) **Spanish Readings for Nonmajor Students (3)**

The Staff

Primarily for graduate students preparing for reading examinations. Undergraduates admitted only with specific permission of the instructor. No academic credit for graduate students. (Fall and spring—evening.)

5) 52 **Survey of Spanish Literature and Civilization (3-3)**

Supervia

The social, artistic, and cultural background of Spanish civilization. Lectures, readings, recitations, and informal discussion. (1964-65 and alternate years; academic year—day; 1965-66 and alternate years academic year—evening; summer 1964.)

SLAVIC LANGUAGES AND LITERATURES

FIRST GROUP

1-2 **First-year Russian (3-3)**

Yakobson and Staff

A year course; credit is not given for the first half until the second half is completed. A language course in fundamentals of grammar and pronunciation with graded reading, oral drill, and written practice. Listening comprehension and oral practice in electronic language workshop. Workshop fee, \$6 a semester. (First half: fall and spring—day and evening; summer 1964. Second half: fall and spring—day and evening; summer 1964.)

3-4 **Second-year Russian (3-3)**

Yakobson and Staff

A year course; credit is not given for the first half until the second half is completed. Systematic review of grammar. Study of special problems of Russian morphology and syntax. Oral and written reports on assigned topics. Workshop fee, \$6 a semester. (First half: fall—day and evening; spring—evening. Second half: fall—evening; spring—day and evening.)

5 **First-year Russian (6)**

Yakobson and Staff

Classroom (3 hours), laboratory (2 hours). An intensive, accelerated language course in fundamentals of grammar and pronunciation with graded reading, oral drill, and written practice. Listening comprehension and oral practice in electronic language workshop. Enrollment is restricted to Russian 1-2. Workshop fee, \$10. (Fall—day.)

6 **Second-year Russian (6)**

Yakobson and Staff

Classroom (3 hours), laboratory (2 hours). An intensive, accelerated course. Systematic review of grammar. Study of special problems of Russian morphology and syntax. Oral and written reports on assigned topics. Equivalent in content to Russian 3-4. Workshop fee, \$10. (Spring—day.)

9-10 **Russian Conversation and Composition (3-3)**

The Staff

Listening comprehension; oral and written practice. Prerequisite: Russian 3-4 or permission of the instructor. Workshop fee, \$6 a semester. (Autumn year—day.)

7 **Beginning Russian for Reading Examination Candidates (0)**

The Staff

For graduate students who wish to test knowledge of Russian who intend to use the language as a research tool. No academic credit. Tuition fee, \$30. (Fall—evening.)

49 *Russian Readings for Nonmajor Students* (3)

The Staff

Primarily for graduate students preparing for reading examinations. Undergraduate students admitted with permission of the instructor. No academic credit for graduate students. Prerequisite: Russian 4 or 47 or the equivalent. (Spring—evening.)

91-92 *Introduction to Russian Literature* (3-3)

A survey of Russian literature, in translation, from the earliest periods through the literary masterpieces of the 19th and early 20th centuries. Lecture, recitation, and discussion. (Alternate years—evening.)

SECOND GROUP

161-62 *Russian Culture* (3-3)

Olkhovsky

A survey of Russian cultural heritage from the origins of ancient Russia to the present. Lecture, recitation, discussion, and individual reports on assigned topics. This course may be taken for graduate credit with the approval of the instructor. (Alternate years—evening; summer 1964.)

165 *Soviet Literature* (3)

Popelnko

A survey of major literary figures, literary movements, and literary styles in translation. Revolution and its impact on literature and on writers. The revival of the psychological novel, short story, contemporary poetry. This course may be taken for graduate credit with the approval of the instructor. (Fall—evening.)

SOCIOLOGY AND ANTHROPOLOGY

Sociology

FIRST GROUP

2 *Man, Culture, and Society II** (3)

The Staff

(Formerly Sociology and Anthropology 1)

Development of culture and personality, the impact of groups and institutions on man's social behavior. A survey of the fields within sociology. (Fall and spring—day and evening; summer 1964.)

41 *American Social Problems* (3)

Nathan

(Formerly Sociology and Anthropology 2)

Analysis of major social problems confronting the United States. Factors producing social problems; their nature and treatment. (1965-66 and alternate years.)

SECOND GROUP

129 *Race and Minority Groups* (3)

Analysis of the relationships between dominant and minority groups in society, particularly in the United States; nature and range of prejudice; analysis of the phenomenon of prejudice. (1965-66 and alternate years; summer 1964.)

140 *Social Stratification: Class and Status* (3)

(Formerly Sociology and Anthropology 161)

Nature of class structure patterns of status, prestige relations in American society, differential class behavior, analysis of comparative social structure and social mobility. (1964-65 and alternate years; spring—day.)

* Anthropology 1 and Sociology 2 combine to make a four-course, which is recommended for students in Sociology and Anthropology.

131 *Social Institutions* (3)

Functional analyses of basic social institutions: family, education, religion, economy, and state in the structure of American Society. (1964-65 and alternate years: fall—day.)

137 *Sociology of Law* (3)

The law as a social phenomenon and an agency of social control. Sociological analysis of particular problems of legal concepts, doctrine, and institutions. (1965-66 and alternate years.)

144 *Mass Communications* (3)

Monane

The communications process; barriers to communication; structure and function of communication; (1) society; content, control, content, and effects of mass communication. (1964-65 and alternate years: spring—day.)

146 *Industrial Sociology* (3)

Brown

Sociological analysis of work situations, occupational mobility, development of the labor movement, industrial leadership and unions. (1964-65 and alternate years: fall—evening.)

147 *Sociology of Large Organizations* (3)

Brown

Sociological analysis of the structural characteristics of large complex organizations; individual accommodations to such organizations; the impact of the large organizational pattern on American social life. (1964-65 and alternate years: spring—day.)

THIRD GROUP

226 *Problems of Underdeveloped Areas* (3)

Ginsert

Characteristics and problems of underdeveloped areas; the interrelationship of demographic, economic, social, and cultural factors; economic and technological problems and changes. (1964-65 and alternate years: spring—day.)

241 *Population Problems* (3)

Composition of populations, trends in population growth and population pressure, factors producing population movements, effects of migration, population policies on growth and birth control. (1964-65 and alternate years: fall—day.)

Anthropology

FIRST GROUP

1 *Man, Culture, and Society I** (3)

The Staff

(Formerly Sociology and Anthropology 111)
The physical evaluation of man and the origins and development of culture, including a survey of the topic divisions of the field. (Fall and spring—day and evening; summer 1964.)

SECOND GROUP

154 *Primitive Economics* (3)

Gallagher

The comparative study of pre-industrial systems of production, distribution, and consumption. An inquiry into the applicability of Western laws of economic analysis to non-Western societies. (1964-65 and alternate years: spring—day.)

161 *Language and Culture* (3)

Gallagher

(Formerly Sociology and Anthropology 143)
The structure and semantics of systems of human communication, linguistic change, the influence of language on world view. (Fall—day.)

* Anthropology 1 and Sociology 2 combine to make a year course, which is prerequisite to all other courses in Sociology and Anthropology.

172 *Native People of the New World* (3)

Gallagher

A survey of representative Indian groups of the Americas from primitive bands to high civilizations, stressing the patterned nature of diverse cultural responses to universal problems of human existence. (Spring only.)

173 *Cultures of the Pacific* (3)

Campbell

A study of the culture, history, and ways of the life of the native peoples of Melanesia, Micronesia, and Polynesia. (Spring only.)

THIRD GROUP

261 *Cultural Origins of the New World* (3)
(1965-66 and alternate years.)

Campbell

262 *Applied Anthropology* (3)

Gallagher

(Formerly Sociology and Anthropology 155)

The use of anthropological methods and techniques in such specific fields as government, business, law, and medicine. (1965-66 and alternate years.)

263 *Culture Contact and Change* (3)

Western impact on non-Western cultures. The workings and the processes of social change as variant cultures and ethical systems interact. (1964-65 and alternate years; fall—as arranged.)

265 *Cultural Ecology* (3)

Campbell

A cross-cultural examination of the relationship of technology to the natural world. (1965-66 and alternate years.)

SPEECH

B.C. *American Speech for Foreign Students* (1-3)

Bielski

Class limited to foreign-born students. Instruction in the formation of the sounds of spoken English, with emphasis on rhythm and inflection. The International Phonetic Alphabet is used. Recording fee, \$5 a semester. (Academic year—day and evening; summer 1964.)

1 *Effective Speaking* (3)

The Staff

Preparation and delivery of extemporaneous speeches, developing confidence and poise, and using material, selecting and organizing material. Recording fee, \$2. (Fall and spring—day and evening; summer 1964.)

2 *Persuasive Speaking* (3)

Hengman, Sanders

A continuation of Speech 1, which is prerequisite, with emphasis on speech content, form and elementary principles of persuasion. (Fall—day, spring—day and evening.)

STATISTICS

FIRST GROUP*

51 *Introduction to Business and Economic Statistics* (3)

The Staff

Lecture (2 hours), laboratory (2 hours). Survey of elementary principles and procedures for presenting, analyzing, and interpreting statistical data; consideration of cause and effect; measures of variability, sampling processes, index numbers, time series analysis, and simple correlation. Prerequisite: one entrance unit in algebra. Laboratory fee, \$2. (Fall and spring—day and evening; summer 1964.)

* All three group courses, Statistics 51, 52, and 53 are listed in this subject matter, and credit hours for only one of the three may be applied toward a degree. Statistics 52 lies outside of this group, and may be taken for degree credit in combination with any one of the other three.

- 52 *Mathematics of Finance* (3) The Staff
Lecture (3 hours). Interest and discount, annuities, valuation of stocks and bonds, sinking funds, amortization, valuation of depletable assets, depreciation. Prerequisite: one entrance unit in algebra. (Fall and spring—evening.)
- 53 *Introduction to Statistics in Psychology and Education* (3) The Staff
Lecture (2 hours), laboratory (2 hours). Sources of data, tabulation, charts and graphs, averages, dispersion, quartiles and percentiles, raw scores and derived scores, frequency distributions, reliability and validity of tests, normal curve, correlation, elementary sampling, and an introduction to estimation and tests of hypotheses. Prerequisite: one entrance unit in algebra. Laboratory fee, \$9. (Fall and spring—day and evening; summer 1964.)
- 91 *Principles of Statistical Methods** (3) The Staff
Lecture (2 hours), laboratory (2 hours). Variables and attributes, averages and dispersion, frequency distributions and their characteristics, regression and correlation, statistical decision processes. Prerequisite: one entrance unit in algebra. Laboratory fee, \$9. (Fall—evening; spring—day; summer 1964.)

SECOND GROUP

- 104 *Statistics in Psychology and Education* (3) Cisin
Lecture (2 hours), laboratory (2 hours). Introductory study of statistical techniques necessary for application of statistics in research problems in psychology and education. Laboratory fee, \$9. (Fall—Saturday morning; summer 1964.)
- 105 *Statistics in Psychology and Education* (3) Cisin
Lecture (2 hours), laboratory (2 hours). Advanced study of statistical techniques necessary for an application of statistics in research problems. Analysis of variance, correlation techniques, chi-square applications, and sampling theory. Prerequisite: Statistics 53 or 104. Laboratory fee, \$9. (Spring—Saturday morning.)
- 106 *Factor Analysis* (3) The Staff
Matrix theory as applied to factor analysis, introduction to the concepts of factor analysis and their utility in various phases of research. Prerequisite: Statistics 105 or the equivalent. Laboratory fee, \$9. (1965-66 and alternate years.)
- 107 *Statistics for Engineers* (3) The Staff
Simple probability models, discrete and continuous distributions, sampling, hypothesis testing and estimation, nonparametric tests. Emphasis on engineering applications. Prerequisite: differential and integral calculus. (Fall and spring—evening.)
- 110 *Quality Control Techniques* (3) The Staff
Applications of probability and distribution theory to industrial control problems; use of quality control charts; acceptance sampling plans; estimation of lot and process characteristics. Prerequisite: Statistics 51 or permission of instructor. (1964-65 and alternate years; spring—evening.)
- 111 *Business and Economic Statistics I* (3) Johnson
Statistical processes as related to the problems of business and economic research with emphasis on decision making under conditions of uncertainty. Topics include probability, dispersion, analysis of variance, correlation, quality control, and index numbers. Prerequisite: Statistics 51 or permission of instructor. (Fall—day and evening.)
- 112 *Business and Economic Statistics II* (3) Johnson
Specific problems of business and economics with statistics as a tool of analysis. Introduction to principles and use of linear programming, game theory and queuing theory techniques. Study of various economic relationships, including demand, supply, cost and price functions. Prerequisite: Statistics 111 or equivalent. (Spring—day and evening.)

* Statistics 91 is for Statistics majors, the student in engineering will do the laboratory and research.

- 117 Analysis of Variance I (3)** Thomas
Lecture (2 hours), laboratory (2 hours). The analysis of variance to segregate factors producing significant variation; a method to estimate experimental error; multiple classifications, Latin Square, Greek-Latin Square, factorials; an introduction to model theory. Prerequisite: Statistics 91. Laboratory fee, \$9. (Fall—evening.)
- 118 Correlation and the Chi-square Test I (3)** Thomas
Lecture (2 hours), laboratory (2 hours). Regression and correlation theory; simple, partial, and multiple; nonparametric methods; analysis of covariance; contingency table analysis; tests of goodness of fit. Prerequisite: Statistics 91. Laboratory fee, \$9. (Spring—evening; summer 1964.)
- 122 Forecasting Principles and Techniques (3)** Johnson
Survey and appraisal of techniques for measuring the state of business conditions and an examination of current indicators. Study of procedures for estimating future values: budget requirements, price levels, or level of general business activity. Prerequisite: Statistics 51 or the equivalent. (1963-66 and alternate years.)
- 123 Introduction to Econometrics (3)** Johnson
A basic quantitative approach to fundamental problems in economic theory involving the use of statistical processes, simple model construction, and probability considerations. Prerequisite: elementary course in Economics and Statistics. (1965-66 and alternate years.)
- 155 Introduction to Mathematical Probability (3)** The Staff
Probability distributions, Bayes' theorem and postulate, Bernoulli's theorem and its experimental verification, mathematical expectation, laws of large numbers. Prerequisite: permission of instructor. (Fall—day; spring—evening.)
- 157-58 Mathematical Statistics (3-3)** Kupperman
Distribution theory, sampling theory, estimation, hypothesis testing, confidence intervals, regression analysis, experimental design. Prerequisite: differential and integral calculus. (Academic year—day and evening.)
- 187 Theory of Sampling (3)** Bright
Problems of sampling and sample design. Admission by permission of the instructor. (1965-66 and alternate years.)
- 188 Nonparametric Statistical Inference (3)** Bright
Statistical inference when the form of the underlying distribution is unknown, sign tests, rank order statistics, theory of runs, nonparametric discriminant analysis. (1965-66 and alternate years.)
- 189-90 Mathematical Probability and Applications (3-3)** Starr
Combinatorial analysis, conditional probability and stochastic independence, probability distributions, laws of large numbers, recurrent events, random walks, Markov chains, simple time-dependent stochastic processes. Prerequisite: Statistics 155 or permission of instructor. (Academic year—evening.)
- 193 Statistical Mathematics* (3)** The Staff
Problems in statistics with the development of real variable theory necessary for their solution. Prerequisite: differential and integral calculus. (Spring—evening.)
- 194 Statistical Mathematics* (3)** The Staff
Problems in statistics with the development of complex variable theory necessary for their solution. Prerequisite: differential and integral calculus. (Fall—evening.)
- 195-96 Reading and Research in Statistics (arr.)** The Staff
(Academic year—as arranged.)

* Mathematics 113 and Statistics 193 and 194 or the equivalent are prerequisite to all third-group courses.

- 197 *Digital Computer Programming with Applications* (3) Bright
Lecture (2 hours), laboratory (2 hours). The use of the digital computer in statistical and other computational work. Machine language, SPS and FORTRAN programming. Writing, debugging, and running programs on the digital computer, using the IBM 1620 in the University Computing Center. Prerequisite: permission of the instructor. Laboratory fee, \$1.00. (Fall and spring—day and evening; summer 1964.)

THIRD GROUP*

- 207-8 *Operations Analysis* (3-3) Bright
Basic concepts and techniques of operations analysis as applied to problems in business management and economic research. An introduction to the processes of linear programming, game theory, and queuing theory. Admission by permission of the instructor. (1964-65 and alternate years: academic year—day.)
- 217-18 *Experimental Design* (3-3)
Advanced theory of the applications of the linear and other hypotheses to experimental design. (1965-66 and alternate years.)
- 257-58 *Advanced Mathematical Statistics I* (3-3) Kupperman
Distribution functions, sequences of random variables, characteristic functions, sampling theory, linear statistical estimation. (Academic year—evening.)
- 279-80 *Advanced Mathematical Probability* (3-3) Kullback
Modern theories and asymptotic laws; elementary theory of definite integration; limit theorems in probability. (1965-66 and alternate years.)
- 261-62 *Information Theory for Engineers* (3-3) Kullback
The elements of information theory and its statistical and probabilistic background from an elementary point of view (nonmeasure-theoretic). Measures of information, entropy, and their properties. Discrete stochastic sources, message assemblies. The transmission of information, channel capacity. Encoding and decoding in channel error detection and correction. The fundamental elements of information theory. (1964-65 and alternate years: academic year—day.)
- 263-64 *Advanced Mathematical Statistics II* (3-3) Greenhouse
Statistical estimation, tests of hypothesis, sequential analysis, statistical decision functions, time series, multivariate statistical theory. (Academic year—evening.)
- 265-66 *Multivariate Analysis* (3-3) Grisser
A year course; credit is not given for the first half until the second half is completed. Tests of significance, generalized variance and covariance, tests of independence, normal and vector correlations, multivariate, normal distribution, generalized Student's *t*-tests, problems of estimation, applications to factor analysis. (1965-66 and alternate years.)
- 267-68 *Characteristic Functions* (3-3) The Staff
A year course; credit is not given for the first half until the second half is completed. Fourier integrals, set functions, inversion formulas, limit theorems, applications to the distribution problem in statistics. (1964-65 and alternate years: academic year—evening.)
- 269 *Sequential Testing* (3) The Staff
(1964-65 and every third year: fall—evening.)
- 270 *Statistical Decision Theory* (3) The Staff
(1964-65 and every third year: spring—evening.)

* Mathematics 124 and Statistics 131 and 134, on the curriculum, are prerequisites for all third-year courses.

271-72 Statistical Information Theory (3-3)

Kullback

A year course; credit is not given for the first half until the second half is completed. Basic concepts, definitions, and formulas of information theory; their significance and general properties. Shannon's coding theorem, channel capacity, and transmission of information; inequalities of information theory and sufficiency; applications to statistical problems of discrimination and hypothesis testing. Asymptotic distribution theory of information; analysis of contingency tables; loss of information due to grouping and sequential analysis; comparison of experiments. (1965-66 and alternate years.)

273-74 Stochastic Processes (3-3)

Kullback

A year course; credit is not given for the first half until the second half is completed. Fundamental notions of stochastic processes; random walks; Markov processes; differential processes; Gaussian processes; applications. (1964-65 and alternate years; academic year—evening.)

295-96 Reading and Research (3-3)

The Staff

Admission by permission of the instructor. (Academic year—as arranged.)

297 Seminar: Problems in Mathematical Statistics (3)
(Summer 1964.)

The Staff

299-300 Thesis (3-3)

(Academic year—as arranged.)

COURSES OFFERED IN SPECIAL PROGRAMS

In addition to the regular courses announced above the University offers the following courses for students enrolled in the following special programs: Navy Graduate Financial Management Program, Air Force Advanced Management Program, Engineering Administration, and Health Care Administration.

101-2 Basic Principles of Statistical Methods (3-3)

Variables and attributes, averages and dispersion, elementary principles of sampling, introduction to the making of statistical decisions.

110 The Bases of Statistical Decision Making (arr.)

Introduction to the techniques of decision making, with emphasis on applications rather than theory. Includes: binomial distribution, normal distribution, Type I and II errors, estimation, research methodology, and problems of inference.

120 Principles of Statistical Analysis (3)

Introduction to the basic concepts of statistical analysis, measures of central tendency, dispersion, normal distribution, basic statistical inference including estimation and testing, hypotheses.

250 Managerial Statistics and Quality Control (3)

The application of statistical principles and practices to management and quality control. Emphasis is placed on the use of statistical techniques in making management decisions, controlling quality and standardization. Prerequisite: Statistics 107 or the equivalent.

ZOOLOGY

Biology

FIRST GROUP

1-2 Introductory Biology (4-4)

The Staff

An interdepartmental course. Lecture (2 hours), laboratory (4 hours). This course is designed to provide the common student with an understanding of the life sciences and to serve as a basis for those who plan to continue in some aspect of biology. It is the introductory course leading to all natural and biological sciences in biology and zoology, and is taught jointly by the staff members of the two departments. Designed to be taken in either sequence, students may be registered for either 1 or 2 at the beginning of the academic year, depending on laboratory space available. Material fee \$3.00 a semester. *Prerequisites:* 1—*Physical Sciences* (4); fall and spring—day and evening sessions (1964). *Prerequisites:* 2—*Physical Sciences* (4); fall and spring—day and evening; summer (1964).

The University

HISTORY AND ORGANIZATION

The George Washington University had its beginning in 1821 as The Columbian College in the District of Columbia. The name of the institution was changed in 1873 to Columbian University and in 1904 to The George Washington University. The debt of the University to George Washington whose name it bears is an unpayable one.

George Washington, as President and as private citizen, had urgently insisted upon the establishment of a National University in the Federal City. There he hoped that, while being instructed in the arts and sciences, students from all parts of the country would acquire the habit of good citizenship, throwing off local prejudices and gaining at first hand a knowledge of the practice, as well as the theory, of republican government. To further the materialization of his hopes, Washington left a bequest of fifty shares of The Potomac Company "towards the endowment of a University to be established within the limits of the District of Columbia, under the auspices of the General Government, if that government should incline to extend a fostering hand towards it." The Congress never extended "a fostering hand". The Potomac Company passed out of existence, and Washington's bequest became worthless.

Fully conscious of Washington's hopes, but motivated primarily by a great missionary urge and the need for a learned clergy, a group of dedicated ministers and laymen sponsored a movement for the establishment of a college in the District of Columbia. Inspired largely by the zeal and energy of the Reverend Luther Rice, they raised funds for the purchase of a site and petitioned Congress for a charter. After much delay and amendment, Congress granted a charter which was approved by President Monroe on February 9, 1821. To safeguard the College's nonsectarian character it provided "That persons of every religious denomination shall be capable of being chosen Trustees nor shall any person, either as President, Professor, Tutor or pupil, be refused admittance into said College, or denied any of the privileges, immunities, or advantages therefore, for or on account of his sentiments in matters of religion."

During the entire time when the institution was known as Columbian College, its activities were centered on College Hill, a tract of forty-six and a half acres between the present Fourteenth and Fifteenth Streets extending north from Florida Avenue to somewhat beyond Columbia Road. The Medical School was located downtown. For the better part of the Columbian University period, the buildings of the University were situated along H Street between Thirteenth and Fifteenth Streets. The Medical School group still remains there.

During the last half century the University's present plan has been developed in that section of the old First Ward familiarly known as "Foggy Bottom," between

Nineteenth and Twenty-fourth Streets, south of Pennsylvania Avenue. Within a few squares are the White House, the Department of the Interior, the State Department, the World Bank, and many other governmental offices and international agencies. The area is not without its reminders of historic interest to the University. President Monroe who signed the Charter lived at 2017 Eye Street. The first President of the Board of Trustees, the Reverend Obadiah B. Brown, was for fifty years the pastor of a church at Nineteenth and Eye Streets, and Washington selected Twenty-third and E Streets as the site of the National University he had hoped to see established.

The University as it is now organized consists of Columbian College of Arts and Sciences, which offers work leading to Associate's, Bachelor's, and Master's degrees; the Graduate Council, which offers work leading to the degree of Doctor of Philosophy; the professional schools, which include Medicine; Law; Engineering and Applied Science; Education; and Government, Business, and International Affairs; the College of General Studies; the Division of University Students; the Division of Air Science; and the Summer Sessions.

The George Washington University is privately endowed and is governed by a self-perpetuating Board of Trustees of which the president is an ex officio member.

ACADEMIC STATUS

The George Washington University is accredited by its regional accrediting agency, the Middle States Association of Colleges and Secondary Schools. This is important to students who wish to transfer credits from one institution to another. The University is on the approved list of the American Association of University Women and is a member of the College Entrance Examination Board.

THE LIBRARY

The Library collections of the University are housed in the University Library and in the departmental libraries of law and medicine.

These collections contain approximately 246,000 volumes—244,000 in the University Library, 65,000 in the Law Library, and 27,000 in the Medical Library. Approximately 10,000 volumes a year are added to the Library's resources. Endowments, supplementing the University appropriation, provide books in the fields of American civilization, American literature, foreign service, history, public finance, and the social sciences; and gifts from many sources have enriched the collections. The Libraries currently receive 2,600 periodicals.

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* See (*) footnote on page 117

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Columbian College of Arts and Sciences: Associate in Arts (A.A.), Associate in Science (A.S.), Bachelor of Arts (A.B.), Bachelor of Science (B.S.), Bachelor of Science in Medical Technology (B.S. in Med. Tech.), Master of Arts (A.M.), Master of Fine Arts (M.F.A.), and Master of Science (M.S.)

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General Catalogue of the University	Director of Admissions
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Law School and Graduate School of Public Law	Director of Admissions
School of Education	Director of Admissions
School of Engineering and Applied Science	Dean of the School
School of Government, Business, and International Affairs	
School of Medicine	Director of Admissions
Summer Sessions	Administrators Office, School of Medicine
Schedule of Classes: Fall and Spring Semesters	Dean of the Summer Sessions
Schedule of Classes: Summer Sessions	Registrar
	Dean of the Summer Sessions

THE GEORGE WASHINGTON UNIVERSITY, 1821

COLUMBIAN COLLEGE OF ARTS AND SCIENCES, 1821

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THE SCHOOL OF MEDICINE, 1825

THE NATIONAL LAW CENTER, 1959

THE LAW SCHOOL, 1865

THE GRADUATE SCHOOL OF PUBLIC LAW, 1959

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THE SCHOOL OF GOVERNMENT, BUSINESS, AND
INTERNATIONAL AFFAIRS, 1928

THE COLLEGE OF GENERAL STUDIES, 1950

THE DIVISION OF UNIVERSITY STUDENTS, 1930

THE DIVISION OF AIR SCIENCE, 1951

THE SUMMER SESSIONS, 1916

THE UNIVERSITY HOSPITAL, 1898

The
George
Washington
University
Bulletin

Courses of Instruction
For The Division of University Students
and Continuing Degree Candidates



1964-1965

WASHINGTON, D. C. 20006

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Information concerning courses of instruction and the programs of the several colleges and schools will be found in separate issues of the University Bulletin, which are listed on the inside back cover.

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Graduate Study	
In Arts and Sciences	
Master's degrees.....	Dean of Columbian College of Arts and Sciences
Doctor of Philosophy.....	Dean of The Graduate Council
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In Engineering or Applied Science.....	Dean of The School of Engineering and Applied Science
In Law.....	Dean of The Graduate School of Public Law
In Accounting, Business Administration, Business and Economic Statistics, Economic Policy, Health Care Administration, International Affairs, Personnel Administration, Public Administration, Public Affairs.....	Dean of The School of Government, Business, and International Affairs
Housing	
Men.....	Dean of Men
Women.....	Dean of Women
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AT WASHINGTON, D. C.

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1964-65

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JULY 1964

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WASHINGTON, D. C. 20006



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1964							1965														
July							January							July							
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The Calendar 1964-65

FALL SEMESTER:

Placement tests	Sept 14-15	Mon-Tues
Registration	Sept 17-19*	Thurs-Sat
Classes begin	Sept 21	Mon
Veterans Day (holiday)	Nov 11	Wed
Thanksgiving recess	Nov 26-28	Thurs-Sat
Classes resume	Dec 29-Jan 2	Wed-Sat
Last day of fall-semester classes	Jan 4	Mon
Examination period	Jan 13	Wed
Examination (holiday)	Jan 15-20	Fri-Sat
	Jan 20	Wed

SPRING SEMESTER:

Placement tests	Jan 25	Mon
Registration	Jan 28-30*	Thurs-Sat
Spring-semester classes begin	Feb 3	Mon
Winter Convocation (holiday)	Feb 22	Mon
Spring recess	April 14-21	Fri-Tues
Last day of spring-semester classes	May 19	Wed
Examination period	May 24-29	Mon-Sat

SUMMER SESSIONS:†

REGISTRATION FOR FALL SEMESTER

1965-66	Sept 16-18	Thurs-Sat
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* Thursday and Friday, Class 1, to 10:00 a.m.
 * Dates and fee determined by the Council on Education for the Center for the Study of the History of the University of the Pacific in December 1964.

The University

HISTORY AND ORGANIZATION

The George Washington University had its beginning in 1821 as The Columbian College in the District of Columbia. The name of the institution was changed in 1863 to Columbian University and in 1904 to The George Washington University. The debt of the University to George Washington whose name it bears is an intangible one.

George Washington, as President and as private citizen, had urgently insisted upon the establishment of a National University in the Federal City. There he hoped that, while being instructed in the arts and sciences, students from all parts of the country would acquire the habits of good citizenship, throwing off local prejudices and gaining at first hand a knowledge of the practice, as well as the theory, of republican government. To further the materialization of his hopes, Washington left a bequest of fifty shares of The Potomac Company "towards the endowment of a University to be established within the limits of the District of Columbia, under the auspices of the General Government, at that government should incline to extend a fostering hand towards it". The Congress never extended "a fostering hand". The Potomac Company passed out of existence, and Washington's bequest became worthless.

Fully conscious of Washington's hopes, but motivated primarily by a great missionary urge and the need for a learned clergy, a group of dedicated ministers and laymen sponsored a movement for the establishment of a college in the District of Columbia. Inspired largely by the zeal and energy of the Reverend Luther Rice, they raised funds for the purchase of a site and petitioned Congress for a charter. After much delay and amendment, Congress granted a charter which was approved by President Monroe on February 9, 1821. In safeguarding the College's nonsectarian character it provided "That persons of every religious denomination shall be eligible for being elected Trustees, nor shall any person, either as President, Professor, Tutor or pupil, be refused admittance into said College, or denied any of the privileges, immunities, or advantages therefore, for or on account of his sentiments in matters of religion."

During the entire time when the institution was known as Columbian College, its activities were centered on College Hill, a tract of forty-six and a half acres between the present Fourteenth and Fifteenth Streets extending north from Florida Avenue to somewhat beyond Columbia Road. The Medical School was located downtown. For the better part of the Columbian University period, the buildings of the University Medical School group still remain there.

During the last half century the University's present plan has been developed in that section of the old First Ward formerly known as "Foggy Bottom," between

Nineteenth and Twenty-fourth Streets, south of Pennsylvania Avenue. Within a few squares are the White House, the Department of the Interior, the State Department, the World Bank, and many other governmental offices and international agencies. The area is not without its reminders of historic interest to the University. President Monroe who signed the Charter lived at 2017 Eye Street. The first President of the Board of Trustees, the Reverend Othello B. Brown, was for fifty years the pastor of a church at Nineteenth and Eye Streets, and Washington selected Twenty-third and E Streets as the site of the National University he had hoped to see established.

The University as it is now organized consists of Columbian College of Arts and Sciences, which offers work leading to Associate's, Bachelor's, and Master's degrees; the Graduate Council, which offers work leading to the degree of Doctor of Philosophy; the professional schools, which include Medicine; Law; Engineering and Applied Science; Education; and Government, Business, and International Affairs; the College of General Studies; the Division of University Students; the Division of Art Science; and the Summer Sessions.

The George Washington University is privately endowed and is governed by a self-perpetuating Board of Trustees of which the president is an ex officio member.

ACADEMIC STATUS

The George Washington University is accredited by its regional accrediting agency, the Middle States Association of Colleges and Secondary Schools. This fact is important to students who wish to transfer credits from one institution to another. The University is on the approved list of the American Association of University Women and is a member of the College Entrance Examination Board. The Department of Chemistry is on the approved list of the American Chemical Society.

THE LIBRARY

The Library collections of the University are housed in the University Library and in the departmental libraries of law and medicine.

These collections contain approximately 386,500 volumes—294,000 in the University Library, 65,000 in the Law Library, and 27,500 in the Medical Library. Approximately 10,000 volumes a year are added to the Library's resources. Endowments, supplementing the University appropriation, provide books in the fields of American civilization, American literature, foreign service, history, public finance, and the social sciences; and gifts from many sources have enriched the collections. The Libraries currently receive 2,000 periodicals.

The hours of the University Library and the Law Library are Monday through Friday, 9:00 a.m. to 10:00 p.m.; Saturday, 9:00 a.m. to 3:00 p.m.; Sunday, 2:00 to 6:00 p.m. The Medical Library is open Monday through Friday, 9:00 a.m. to 10:00 p.m.; Saturday, 9:00 a.m. to 3:00 p.m.

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Joseph Richard Sizoo, A.M., D.D., LL.D., LL.D., L.H.D., STD., *Director of University Chapel*
Loretta May Stallings, A.M., *Director of Women's Athletics*
Stanley Tracy, LL.B., *Director of Alumni Relations*
Benjamin Douglas Van Evert, Ph.D., Sc.D., *Dean for Sponsored Research*
Wallace Edward Weems, Jr., A.B., *Director of Personnel Services*

THE DIVISION OF UNIVERSITY STUDENTS

John Gage Albee, Jr., Ph.D., *Dean of the Division of University Students*
Elizabeth Truman Wright, A.M., *Assistant Dean of the Division of University Students*

The Division of University Students

J. G. Allee, Jr., *Dean*; Elizabeth Wright, *Assistant Dean*

THE DEAN'S COUNCIL*

I. B. Hansen, Hewitt Kenyon, J. W. Skinner

INTRODUCTION

The Division of University Students was established in 1930 to make the regular course offerings of the University more generally available to members of this metropolitan community and others, not at the time candidates for degrees in this University. In this Division are registered students who wish to undertake university courses for credit or as auditors. University students may be employed in government or industry, taking courses to increase their vocational fitness or to inform them on new developments in the arts and sciences. They may be taking courses as a matter of personal interest for cultural enrichment. Such students may be candidates for higher degrees in other institutions, sent here for special work as part of a graduate program. They may be undergraduates, matriculated in other colleges, taking summer sessions courses only or courses for transfer during the regular academic year with the approval of their own institution. To serve members of such groups and others, not enrolled in degree-granting branches of the University, is the function of the Division of University Students.

Admission

The University accepts both men and women. Students are admitted at the beginning of each semester and summer session.

The right is reserved to refuse admission to any student with an academic record which creates doubt of his ability to succeed in college or who, for any other reason, would not be an acceptable student.

* The Dean of Faculty, the Dean and the Assistant Dean of the Division are ex officio members of the Council.

APPLICATION FOR ADMISSION OR READMISSION

Forms for application for admission or readmission are available at the Office of the Director of Admissions, 2029 G Street NW., Washington, D. C. 20006; telephone FE 3-0230, extension 344. No application fee is charged for admission to this Division.

Application for admission to *nondegree* status in the Division of University Students should be received, with credentials when required, no later than the days of registration, as stated in the Calendar.

READMISSION

A student previously registered in the University who was not registered on campus during the immediately preceding semester (summer session excluded) must apply for readmission in the Office of the Director of Admissions.

ENTRANCE REQUIREMENTS*

Good character and an academic background appropriate for the program of studies contemplated are required.

A person not working for a degree at this University will be considered for admission to the Division of University Students to take courses for which he has adequate preparation, as determined by the departments concerned.

SCHOLASTIC RECORDS

Scholastic records are required of

1. An applicant who graduated from high school within the previous two calendar years. Such an applicant must meet the following requirements for admission to Columbian College of Arts and Sciences:

a) An acceptable certificate of graduation from an accredited secondary school, showing at least fifteen units which must include four years of English; at least two years of one foreign language; two years of science, preferably with laboratory instruction; two years of social studies, one of which must be American history; and two years of college preparatory mathematics. It is to be noted that one unit of algebra, or the equivalent, is prerequisite to courses in chemistry and statistics, and that one unit in algebra and one unit in plane geometry, or the equivalent, are prerequisite to courses in mathematics and physics.

b) The principal's statement that the applicant is prepared to undertake college work.

c) College Entrance Examination Board scores must be submitted on the Scholastic Aptitude Test and the English Composition Achievement Test.

* Entrance requirements are established by the faculty of the several colleges, schools, and divisions. The Director of Admissions, in accord with the faculty, administers preliminary screening examinations, and transfer.

A unit represents a unit's credit, as is normally stated below, including in the appropriate unit less than 12 instructional periods or the equivalent of supervised classroom work.

2. An applicant who has been subject to any form of academic or disciplinary action at any college or university within the previous calendar year.

Scholastic records may be required of

1. An applicant who has attended any college or university during the previous calendar year.
2. A former student of this University who was on probation or suspended and, since then, has attended another college or university.
3. An applicant who has ever been subject to academic or disciplinary action.

When scholastic records are required, a student may be admitted for one semester or summer term only, pending receipt of records and under provisions stated by the Office of the Director of Admissions.

Registration

A student cannot register for classes until he has received a letter of admission to the University, issued by the Office of the Director of Admissions (see "Admission").

A student previously registered in the University who was not on-campus during the immediately preceding semester (summer sessions excluded), must apply for re-admission in the Office of Admissions.

No registration for credit is accepted for less than a semester or one summer session.

A student may not register concurrently in this University and another institution without the prior permission of the dean of the college, school, or division in which he is registered in this University. Registration in more than one college, school, or division of the University requires the written permission of the deans concerned, prior to registration. Allowance for credit for work done concurrently at another institution will be at the discretion of the appropriate committee.

TIME AND PLACE OF REGISTRATION

Registration for the Division of University Students is conducted in Building C, 2029 G Street NW., during the following periods: *fall semester*, September 17 and 18, 12:00 to 3:00 p.m.; September 19, 10:00 a.m. to 1:00 p.m. *Spring semester*, January 23 and 29, 12:00 to 3:00 p.m.; January 30, 10:00 a.m. to 1:00 p.m.

Fees and Financial Regulations

Fees paid by the student cover only a portion of the cost of instruction and of the operation of the University. Income from endowment funds, grants, and gifts from alumni and friends of the University make up the difference.

The following fees were adopted for the academic year 1964-65.

Tuition Fees

Full-time program (12 to 18 hours), each semester.....	\$625.00
Part-time program, each semester hour.....	40.00

Additional Course Fees

In certain courses additional fees, such as laboratory and material fees, are charged as indicated in the course descriptions. These fees are charged by the semester and, unless otherwise indicated, may be defrayed in two payments when the tuition is paid in this manner. Breakage of apparatus is charged against the individual student. When breakage is in excess of the normal amount provided for in the laboratory for the individual student will be required to pay such additional charges as are determined by the department concerned.

Special Fees

Admission tests (when required).....	6.00-12.00
Late-registration fee, for failure to register within the designated period.....	5.00
Change fee, for each change in program: dropping or adding a course, changing from one section to another within a course, change of status (from under to credit status or vice versa), and change in credit hours for a course.....	2.00
Withdrawal fee, charged in special cases.....	5.00
Service fee, for deferred payment plan (see "Payment of Fees").....	5.00
Reinstatement fee, for reinstatement after financial suspension.....	10.00
For each examination to qualify for advanced standing and for each special examination.....	5.00
English test for foreign students (when required).....	5.00
Laboratory checkout fee, for failure to check out of chemistry laboratory by the date deadline set by the instructor.....	3.00
Transcript fee, for each transcript of record.....	1.00

Registration in the University entitles each student to the following University privileges: (1) the services of the Placement Office; (2) the use of University library; (3) gymnasium privileges; (4) admission to all athletic contests, unless otherwise specified; (5) subscription to the *University Herald*, the student newspaper; (6) admission to University debates; (7) medical attention and hospital services as desired under Health Services. These privileges terminate and a student is no longer in residence when he withdraws or is dismissed from the University.

PAYMENT OF FEES

All fees are payable at the Office of the Cashier, 745 Twenty-first Street NW. No student is permitted to complete registration or attend classes until all fees are paid. Tuition and fees for each semester are due and payable in full at the time of each registration.

However, a student registered for six semester hours or more may sign a contract with the Office of the Cashier at the time of each registration permitting him to pay one-half of the total tuition and fees (except for fees payable in advance) at the time

of registration and the remaining half on or before November 4, 1964 (for the fall semester) and March 17, 1965 (for the spring semester). A Service Fee of \$5 will be due and payable at the time of registration for the use of this deferred payment plan. The University will not obligate itself to notify the student, in advance of the payment due date, for the second half of the semester charges. Students who fail to make any payment when due will be automatically suspended and may not attend classes until they have paid all accrued fees and a \$10 Reinstatement Fee and have been officially reinstated by the Office of the Cashier.

A student suspended for failure to meet payments when due may not be reinstated for the semester after two weeks from the date of suspension. Applications for reinstatement are to be made to the Office of the Cashier.

An auditor pays all fees chargeable to the student registered for credit except the late registration fee.

WITHDRAWALS AND REFUNDS

Applications for withdrawal from the University or for change in class schedule must be made in person or in writing to the dean of the college, school, or division in which the student is registered. Notification to an instructor is not an acceptable notice.

In authorized withdrawals and changes in schedule, cancellations of semester tuition charges and fees will be made in accordance with the following schedule:

1. Complete withdrawal from the University:

Fall Semester

Withdrawal dated on or before September 25, 1964	90 per cent
Withdrawal dated September 28 to October 9, 1964	75 per cent
Withdrawal dated October 12 to October 23, 1964	50 per cent
Withdrawal dated after October 23, 1964	none

Spring Semester

Withdrawal dated on or before February 5, 1965	90 per cent
Withdrawal dated February 8 to February 19, 1965	75 per cent
Withdrawal dated February 22 to March 5, 1965	50 per cent
Withdrawal dated after March 5, 1965	none

2. For a change in status from full time to part time student or for partial withdrawal by a part time student, the above schedule applies to the difference in charges between the original program and the adjusted program continuing in effect.

3. A student enrolled in a full time program, who drops or adds a course and continues to be in a full time program, will have no financial adjustments of tuition made other than those involving course fees.

In no case will tuition be reduced or refunded because of absence from classes.

Payment applies only to the semester for which a registration charge is incurred and in no case will this be credited to another semester.

Students in chemistry who fail to check out of the laboratory on or before the date set by the instructor, unless excused by the instructor, will be charged a \$3 check-out fee. A student who drops a course before the end of the semester must check out of the laboratory at the next regular laboratory period.

Students enrolled in the ROTC who fail to turn in uniforms, equipment, and textbooks, on separation from the Corps, are charged the value of the missing items.

Authorization to withdraw and certification for work done will not be given a student who has not a clear financial record.

Students are encouraged to provide their own cash funds until they can make banking arrangements in the community.

Regulations

A student enrolled in the University is required to conform to the following University regulations and to comply with the rules and regulations of the college, school, or division in which he is registered.

A student who withdraws or is suspended, or is otherwise absent from the University for one semester or more, may re-enter and continue his work only under the rules and regulations in force at the time of his return.

If a student knowingly makes a false statement or conceals material information on an application for admission, registration card, or any other University document, his registration may be canceled and he will be ineligible (except by special action of the Dean) for subsequent registration in any part of the University.

AMOUNT OF WORK

A full-time student who is not on probation may take ordinarily not more than 17 semester hours. A student employed more than 20 hours a week, who is not on probation, may take not more than 10 hours.

A full-time student whose quarter-point index is 2.00 or higher may take not more than 19 hours. An employed student who meets the same standard may take not more than 12 hours.

A student who accepts employment after registration or at any time during a semester must report that fact immediately to the Dean so that his program may be adjusted, if necessary.

ATTENDANCE

A student may not attend classes until registration is completed and fees due are paid. Regular attendance is required. A student may be dropped from any course for undue absence.

A student suspended for any reason may not attend classes during the period of suspension.

SCHOLARSHIP

A student who fails to maintain the scholarship requirements of this Division may be dismissed from the University.

GRADES

Grades are mailed to the student through the Office of the Registrar at the close of each semester. They are not given out by instructors.

Undergraduate.—The following grading system is used: *A*, excellent; *B*, good; *C*, average; *D*, passing; *F*, failing; *CR*, indicates credit. Whenever a grade has not been assigned the symbol *I* (incomplete) or the symbol *W* (authorized withdrawal) will be recorded. The symbol *I* indicates that a satisfactory explanation has been given the instructor for the student's failure to complete the required work of the course. An "incomplete" cannot be made up after the lapse of one calendar year except by written permission of the dean's council of the college, school, or division concerned. An incomplete which is not removed within one calendar year is automatically changed to an *F*. A student may not repeat for grade a course in which he has received a grade of *D* or above, unless required to do so by the department concerned. A written statement to this effect must be submitted to the Registrar by the appropriate departmental chairman.

Graduate.—For graduate work, grades are indicated as *F* (excellent), *S* (satisfactory), *U* (unsatisfactory), *I* (incomplete), *CR* indicates credit.

THE QUALITY-POINT INDEX

Undergraduate.—Scholarship is computed in terms of the quality point index, obtained by dividing the number of quality points by the number of semester hours for which the student has registered, both based on the complete record in this University.

Quality points are computed from grades as follows: *A*, four points; *B*, three points; *C*, two points; *D*, one point; *F*, no points, for each semester hour for which the student has registered. Courses marked *W* or *I* are not considered in determining the index, except that courses marked *I* will be considered when a formal grade is recorded. An incomplete which is not removed within one calendar year is automatically changed to an *F*. Grades in courses taken at another institution are not considered in computing the quality-point index.

PROBATION

A student must maintain a quality-point index of at least 2.00, or be placed on probation. He remains on probation as long as his index is below 2.00.

SUSPENSION

A student whose index falls below 1.50 is subject to suspension.

A student suspended for poor scholarship may apply for readmission after an interval of one calendar year. A student suspended twice for poor scholarship will not be readmitted.

EXAMINATIONS

Examinations are scheduled at the end of each semester or at the completion of the course.

ACADEMIC DISHONESTY

Evidence of dishonesty on the part of any student will result in his suspension from the University upon the recommendation of the Dean's Council.

A student found guilty of dishonesty will be suspended for a stated period and will be deprived of credit for all courses in which he is enrolled during the semester in which the dishonest act occurs. A disciplinary grade of "Failure—Academic Dis-

honesty" will be recorded for each such course, and this grade will be employed in computation of the quality-point index.

If a student suspended because of academic dishonesty should be readmitted, he may be required to repeat for grade all courses for which a disciplinary grade has been recorded, and both the grade earned on repetition and the disciplinary "Failure—Academic Dishonesty" grade will be employed in computation of the quality-point index.

WITHDRAWAL

Withdrawal from a course or from the University requires the permission of the Dean. Permission to withdraw from the University will not be granted a student who does not have a clear financial record. (See "Fees and Financial Regulations", pages 17 and 18-19.)

Withdrawal between the last working day* in October and the end of the fall semester and between the last working day* in February and the end of the spring semester is permitted only in exceptional cases.

All charges for courses dropped without the approval of the Dean must be met by the student. Reporting the dropping of a course to an instructor does not effect its discontinuance.

CHANGES IN PROGRAM OF STUDIES

Changes within the Division of University Students.—A student may not change or drop courses (see "Withdrawal", above) or change his status to that of auditor except with the approval of the Dean.

Change from one section to another of the same course may be made with the approval of the Dean and the department concerned.

Transfer within the University.—Transfer to or from the Division of University Students may be made only with the approval of the deans concerned.

Application for transfer to degree candidacy will be considered only after the completion of at least one semester in the Division of University Students.

The student currently or previously registered in this Division who wishes transfer to degree candidacy should understand that consideration will be given to only those courses which are approved as applicable toward the degree sought and that a maximum of 45 semester hours of such credits earned in this Division can be so counted. Upon transfer the student should consult the dean concerned and understand clearly the requirements he must fulfill.

Normally, all work toward a Master's degree must be done in residence in the same granting college or school.

CREDIT AND AUDIT

Credit is given only after registration for a course and satisfactory completion of the required work.

In special instances, with the permission of the instructor, a person may be registered

*The University work week is Monday through Friday, inclusive.

istered as an *auditor* in a class without being required to take active part in the exercises or to take examinations, but no credit will be allowed for such attendance. A student who takes a course as an auditor may not take the same course later for credit.

An auditor may be admitted late in any semester or summer term with the permission of the instructor and department concerned.

TRANSCRIPTS OF RECORD

Official transcripts of student records will be issued on request of the student or former student. A fee of one dollar is charged for each transcript. No certificate of work done will be issued for a person who does not have a clear financial record.

THE LIBRARY

A student registered in the University is entitled to the reference use of the University Library. The Student Identification Card issued upon the payment of fees, must be presented as identification.

The loan period for most books available for home circulation is two weeks, with an additional two-week renewal. A fine of five cents will be charged for each day a book is overdue. Any book which does circulate is subject to recall by the Librarian at any time. Reserve books for editorial reading must be used in the reading rooms when the Library is open. With special permission they may be drawn for overnight use when the Library closes. A fine of twenty-five cents will be charged for the first hour or fraction of an hour and five cents for each hour or fraction thereafter that a reserve book is overdue. Grades of a student will be withheld until his library record is clear.

RIGHT TO DISMISS STUDENTS

The right is reserved by the University to dismiss or exclude any student from the University, or from any class or classes, whenever, in the interest of the student or the University, the University Administration deems it advisable to do so.

RIGHT TO CHANGE RULES

The University and its various colleges, schools, and divisions reserve the right to modify or change requirements, rules, and fees. Such regulations shall go into force whenever the proper authorities may determine.

PROPERTY RESPONSIBILITY

The University is not responsible for the loss of personal property in any University building. A "Lost and Found" Office is maintained in the Student Union.

Student Services and Activities

HEALTH SERVICES

The Health Services Staff assists students with their medical needs by advice and treatment, by proper referral when necessary, and by cooperation with other physicians. For medical emergencies and health consultations there is, on the campus, a Student Health Clinic open from 9 A.M. to 5 P.M., Monday through Friday during the academic year and Summer Session, with physician and nurse in attendance. There is also a rest room for women, with a graduate nurse in charge. For night and weekend emergencies, students may go to the emergency room of the University Hospital for treatment. The basic fee for this visit will be paid by the Health Services, and all other charges will be the responsibility of the student. This arrangement is for emergency care only.

Medical privileges include: (1) physical examination of all students who are applicants for courses in Physical Education; (2) three visits in any one (month by a member of the Health Services Staff, office or residence (District of Columbia); (3) hospitalization, including board and nursing, in the University Hospital for not more than one week during any twelve month period—the necessity to be determined by the Director of Health Services. All additional hospital charges for operating room, anesthetics, laboratory, X-ray, medications, or any special services must be paid by the student. Expenses incurred for examinations and treatment by specialists, such as eye refraction and provision of glasses; orthopedic examinations and application of cast or other application, laboratory and X-ray work, and surgical operations must be paid by the student.

This medical benefit applies only to illness or disability incurred while currently enrolled in the University. It does not apply to illness or disability incurred between the last day of examinations for a semester or summer session and completion of registration for the next semester or summer session.

The student is allowed, if he so desires, to engage physicians and nurses of his own choice, but when he does so he will be responsible for the fees charged.

Rules: (1) The Director of Health Services is empowered to limit or deny the medical benefits where, in his discretion, a student has, by his misconduct or breach of the rules of the University, made himself ineligible; (2) the Director of Health Services has authority to determine the necessity and length of hospitalization; (3) a student not currently enrolled or one who has severed his connection with the University is ineligible for medical benefits; (4) a student intending to train for an athletic team is required to pass a thorough examination at the beginning of each semester; (5) hospitalization is not available to those students availing themselves of other hospitalization coverage for the same illness.

The University is not responsible for injuries received in intercollegiate or intramural games, or in any of the activities of the physical education departments.

*A charge for a special physical examination is made by the University if a student fails to appear for a physical examination during the period set for new persons.
†See Page 117 for exceptions.

VETERANS EDUCATION

The Personnel of the Office of the Dean of Men, Building Q, 2029 H Street NW., act as advisers to veterans and war orphans and in a liaison capacity between the University and the Veterans Administration. This Office should be consulted concerning educational benefits before applying to the Veterans Administration for certification. The Veterans Administration is at 1717 Massachusetts Avenue NW., Washington, D. C. 20421.

Students eligible under one of the state laws should also contact this Office.

PUBLIC LAW 634 (WAR ORPHANS' EDUCATIONAL ASSISTANCE ACT)

A child of a person who died of a disease or injury incurred or aggravated while on active duty in the Armed Forces during World War I, World War II, or the Korean Conflict may be eligible for educational assistance under this Act, if certain age requirements are met. In the case of a child who has not reached the age of majority, his guardian must make application for him to the Veterans Administration.

PUBLIC LAW 190 (WORLD WAR II GI BILL EXTENSION)

The educational benefits for World War II veterans terminated July 25, 1956, except for persons eligible under special enlistment provision.

PUBLIC LAW 550 (KOREAN GI BILL)

To be eligible, a veteran must have been in service between June 27, 1950 and January 31, 1965, no longer be on active duty, and have begun his education within three years after separation. Such students have eight years from separation or January 31, 1965, whichever is earlier, to use their benefits.

Application for benefits to the Veterans Administration should be made as early as possible; V.A. approval should be presented to the veterans adviser from the Office of the Dean of Men during the registration procedure.

PUBLIC LAWS 16, 894, and 87-815 (VOCATIONAL REHABILITATION)

Disabled veterans desiring vocational rehabilitation under these Laws should apply to the Veterans Administration for approval of their training objectives at least sixty days prior to registration.

THE READING CENTER

The Reading Center, 2013 Eye Street NW., offers individual diagnostic and corrective services for all levels: primary, elementary, secondary, and adult. In addition special reading improvement classes are conducted on the high school and adult level.

A complete diagnosis includes psychological tests; vision, hearing, and dominance tests; and the various reading and spelling tests. Results are interpreted and a written report is presented in conference with the parents or the individual.

The special reading classes for high school students and adults are offered throughout the year at stated intervals. Emphasis is placed on improvement of vocabulary, speed, comprehension, and study skills. Machines such as the tachistoscope, rate accelerator, and controlled reader are also used for increasing speed of comprehension.

Fees.—The fee for individual diagnosis is \$45; for individual instruction, \$6 a lesson; for semi-individual instruction, \$5 a lesson; for instruction in small groups with common reading difficulties, \$3.75 a lesson (\$3.25 for students currently registered in the University). All fees are payable in advance at the Office of the Cashier.

THE SPEECH CLINIC

The Speech Clinic, Lower Auditorium, 720 Twenty-first Street NW., offers diagnostic and corrective work for children and adults with such speech difficulties as stuttering, lispings, cleft palate, cerebral palsy, aphasia, foreign accent, voice, and articulatory problems.

Fees.—There is no charge for the diagnosis. The fee for individual instruction is \$7 an hour; for group instruction, \$4 an hour. Fees are payable at the Office of the Cashier.

THE TESTING AND COUNSELING CENTER

The Testing and Counseling Center, 713 Twenty-first Street NW., offers services which are available to students enrolled in the University, to high school students, and to adults of the community.

The services are designed to assist individuals in the evaluation of their educational and vocational potentialities and objectives, diagnose academic difficulties, provide educational and vocational literature and information, and refer individuals to qualified agencies for assistance with problems not handled by the Center.

The Center provides special testing services including diagnostic tests prescribed by the School of Engineering and Applied Science, admission tests for the University and for other selected educational institutions, and tests for business and industry.

Fees.—For students who are currently registered as degree candidates in the University, the fee is \$10; for students currently enrolled in the University but not as degree candidates, the fee is \$40; for graduates of the University, \$40; for community clients, \$75. Fees for specialized testing are dependent upon the services involved. All fees are payable at the Office of the Center.

RESIDENCE HALLS

Information concerning residence halls is available at the office of the Dean of Men and the Dean of Women.

STUDENT UNION

The Student Union, 2125 G Street NW., is the center for student life. From the cafeteria on the first floor to the reading rooms on the fourth floor, it is well planned to meet the students' need for meals, study, recreation, and activities. In addition to the room on lounge and social lounge the Student Union provides office space for the Student Council and for the other major student organizations.

The Student Activities Office, also in the Student Union, has available information concerning the student organizations and campus events.

RELIGIOUS LIFE

The University recognizes the contribution that religion makes to the life of its students and encourages them to participate in the religious organizations of their choice. Catholic, Jewish, and Protestant bodies sponsor these groups and form a link between the University and the religious community. The advisers of the religious organizations are available for counseling.

UNIVERSITY CHAPEL

The University Chapel is a nonsectarian service of worship for the University community. The service is held Wednesday of each week from 12:10 to 12:30 o'clock at 1006 H Street NW. Among the guest speakers are representative clergymen of Washington. The Director of University Chapel is available for counseling on personal problems.

THE PLACEMENT OFFICE

The Placement Office, 2114 G Street NW., provides assistance to students and alumni seeking full-time, part-time, temporary, or permanent employment. The Office maintains a registry of positions available in many fields, both locally and nationally, and refers qualified applicants for consideration. The Office administers the On-Campus Industrial and Government Recruitment Interview Program for seniors and graduate students, in which well over 150 private companies, as well as certain government agencies, participate. This program offers outstanding employment opportunities to persons seeking career positions.

Students and alumni interested in placement are asked to register in person at the Office and to select from written descriptions of current openings positions for which they wish referral. Those interested in planning careers are invited to study the information on career fields and the brochures of business, industry, and government, which are on display in advance of campus visits by recruiting officers. The services of the Counseling Center are available to students and alumni wishing career guidance.

The Placement Office is open from 9:00 A.M. to 5:00 P.M., Monday through Friday.

INTERNATIONAL HOUSE

International House, 2110 G Street NW., is the social center for students from foreign countries. A series of teas, dances, and other forms of entertainment, and the use of club rooms and lounge enable students to become acquainted and feel at home in the University.

The International Students' Society welcomes as members students from other lands as well as North American students.

The Director of Foreign Student Affairs, whose office is in International House, is available for advice and guidance.

Courses of Instruction

On the following pages of this CATALOGUE, under the alphabetically arranged names of the departments of instruction, are listed the courses of instruction offered by the University in the summer of 1964 and in the academic year 1964-65. The courses as here listed are subject to some slight change. The University reserves the right to withdraw any course announced.

HOURS OF INSTRUCTION

Classes are scheduled in the morning, afternoon, and evening. Evening and daytime sections of the same course are identical, are taught by the same staff of instructors, and carry the same amount of credit. By taking the evening and summer classes and extending the time of study beyond the usual four years, a part-time student may complete the requirements and obtain a degree.

EXPLANATION OF COURSE NUMBERS

In the School of Engineering and Applied Science courses numbered from 1 through 200 are planned for undergraduate credit, certain courses specified in the Advanced Level options may be taken for graduate credit when arrangements are approved in advance by the instructor and the Dean; those numbered 201 and above are planned for graduate credit and may in certain instances be taken by qualified undergraduate students.

In all other schools and colleges the following system of numbering is used.

First group courses.—Courses numbered from 1 to 100 are planned for students in the freshman and sophomore years. With the approval of the adviser and the dean, they may also be taken by juniors and seniors. In certain instances, they may be taken by graduate students to make up undergraduate deficiencies or as prerequisite to advanced courses, but they may not be credited toward a higher degree.

Second group courses.—Courses numbered from 101 to 200 are planned for students in the junior and senior years. They may be credited toward higher degrees only when registration for graduate credit has been approved at the beginning of the course by the dean responsible for the graduate work and by the instructor and when the completion of additional work has been certified by the instructor.

Third group courses.—Courses numbered from 201 to 300 are planned primarily for graduate students. They are open, with the approval of the instructor to qualified seniors; they are not open to other undergraduates.

INDICATION OF THE AMOUNT OF CREDIT

The number of semester hours of credit given for the satisfactory completion of a course is, in most cases, indicated in parentheses after the name of the course. Thus, a year course giving 3 hours of credit each semester is marked (3-3), and a semester

course giving 3 hours of credit is marked (3). A semester hour usually consists of the completion of one fifty-minute period of class work or of one laboratory period a week for one semester.

Accounting

See "Government and Business".

American Thought and Civilization

101 American Civilization (3)

Walker and Staff

Lecture (1½ hours), discussion (1½ hours). This is a University-sponsored course designed to offer all students, toward the end of their residence, a broad assessment of the culture in which they are to live and to work. Contemporary problems and characteristics of American society are presented against the background of the humanities and social sciences. Each lecture is delivered by an authority on a particular subject: political, social, and economic problems; international attitudes; important trends in literature, science, the arts, religion, and philosophy. Discussion sections will combine lecture materials with assigned readings in order to achieve an ordered sense of the overall state of American civilization. Prerequisite: successful completion of 85 semester-hours credit. Open to graduate students, but available for graduate credit to students in the School of Education only. Recommended as an elective, but not to be taken as part of any major program without specific departmental approval. (Fall—late afternoon; spring—evening.)

Anatomy

Professors I. R. Telford (Chairman), Paul Calabresi

Professorial Lecturers T. D. Stewart, J. L. Angel

Associate Professors F. D. Allan, T. N. Johnson, J. B. Christensen

Associate Professorial Lecturer B. S. Blankberg

Assistant Professor J. C. Bartome

Lecturer L. E. Church

Clinical Instructor R. N. Brown

101 Anatomy (12)

For medical students. A correlated lecture and laboratory course in human anatomy including gross anatomy, embryology, histology, and neuroanatomy. (Fall—24 hours a week.)

The Staff
(Fall—24)

- 201 *Gross Anatomy* (3) Calabresi and Staff
Regional dissection of the human body, supplemented with lectures and quiz sections. Study of X-ray anatomy to emphasize the functional aspects of the position, shape, and relation of the viscera and skeletal components. Laboratory fee, \$40. (Fall—as arranged.)
- 203 *Human Embryology* (1½) Allan and Staff
The origin and development of the human body. Special emphasis on the value of embryology in interpreting anatomical anomalies and variations as seen on gross dissection, surgery, obstetrics, and pathology. (Fall—as arranged.)
- 204 *Neuroanatomy* (1½) Johnson and Staff
The macroscopic and microscopic study of the central nervous system and the special sense organs. Emphasis on such dynamic aspects as development, pathways, lesions, etc. Laboratory fee, \$13. (Fall—as arranged.)
- 205 *Microscopic Anatomy* (3) Telford and Staff
Study of the detailed minute structure of cells, tissues, and organs of the human body, with emphasis on the relation of structure to function. Recognition and interpretation of histological sections tested by practical examinations. Laboratory fee, \$13. (Fall—as arranged.)
- 221-22 *Seminar* (1-1½) Telford and Staff
Research reports and discussions of special topics by the Staff and graduate students. For graduate students. Medical students are encouraged to attend. (Academic year, 1 hour a week—as arranged.)
- 249-50 *Introduction to Medical Research** (3-3) The Staff
Primarily for graduate students. A comprehensive introduction to the major medical research techniques—histological, statistical, physical, chemical, electrical and radiological—as applied to biological materials in the medical sciences. Laboratory fee, \$7.50 a semester. (Academic year—W 1:5 pm.)
- 297-96 *Research* (arr.) The Staff
Fee to be arranged. (Academic year—as arranged.)
- 299-300 *Thesis* (3-4) The Staff

Art

- Professors D. C. Kline (Chairman), W. A. MacDonald
Professorial Lecturer Grace Evans
Associate Professors L. P. Lente, George Steiner
Associate Professorial Lecturer Robert Parris
Assistant Professors E. E. Harrison, D. H. Teller
Studio Lecturer Jacqueline Meyer
Studio Lecturers on the Staff of the Corcoran School of Art Edmund Archer, Homer Warrake, Jack Perlman, Alexander Russo, Richard Lefort, Joseph Tazew, Don Turner, Clifford Calico, Albert Davis, Tania Hara, Paul Hoffmann, Francis Lisanto, Eleanor Bookout

* This is an interdepartmental course. The student should register in the Department offering his research.

Studio Lecturers in Applied Music R. H. Harmon, Norman Scribner, John Stephens, Margaret Tolson, Jule Zabawa, Mary Beardsley, Marian Burke, Melissa Graybeal, Ervin Klineckou, Mark Thomas

Instructor H. I. Gates

ART HISTORY AND THEORY

FIRST GROUP

- 1 *Art Appreciation* (3) MacDonald and Staff
The language and function of art in its various media; the historical development of styles, aesthetic principles, theories, and the ideas in art through the ages. Primarily for nonmajors. (Fall and spring—day and evening; summer 1964.)
- 31-32 *Survey of Western Art* (3-3) Leite and Staff
A survey of the arts in the Western World from prehistoric to modern times. A foundation for further study in the history of art. (Academic year—day and evening.)
- 71-72 *Introduction to the Arts in America* (3-3) Kline
Painting, sculpture, and architecture of America, with selected references to the crafts and popular arts. *First half:* from Colonial beginnings to the Republican Age. *Second half:* from early 19th century to the present. (Academic year—evening; summer 1964. Art 71 (B).)

SECOND GROUP

- 101 *Greek and Roman Architecture* (3) MacDonald
(Fall—day.)
- 102 *Greek and Roman Sculpture* (3) MacDonald
(Spring—day.)
- 103 *Medieval Art* (3) Evans
Architecture, sculpture, and painting from the formative stages of Christian Art in the Byzantine Age through the Romanesque and Gothic periods. (Fall—day.) Leite
- 104 *Renaissance Art in Italy I* (3) Leite
The early developments from the 14th to the 15th century. (Fall—day.)
- 105 *Renaissance Art in Italy II* (3) Leite
The High Renaissance and Mannerism. (Spring—day.) Not of-
- 106 *Renaissance Art in the North* (3) Evans
The painting in the Netherlands, Germany, France, Spain, and Portugal (Fall 1964-65.)
- 107 *Eighteenth Century Art in Europe* (3) Leite
The development of painting, sculpture, and architecture in 18th century Europe. (Spring—day; summer 1964.)
- 109 *Nineteenth Century Art in Europe* (3) Leite
Painting and sculpture from Academism to Symbolism. (Summer—1964.)
- 110 *Contemporary Art* (3) MacDonald
Painting and sculpture in 20th century Europe. (Spring—day; summer 1964.)
- 111 *Classical Archaeology* (3) MacDonald
Archaeological monuments of classical civilizations, with intensive study of one or more areas selected from architecture, sculpture, painting, or minor arts. (Summer 1964.)

- 112 *Art of Egypt and the Ancient Orient* (3) MacDonald
A study of the art of Mesopotamia, Anatolia, Egypt, and Persia. (Spring—day.)
- 113 *Baroque Art in Italy* (3) Leite
The development of painting, sculpture, and architecture in the 16th and 17th centuries in Italy. (Fall—day.)
- 114 *Baroque Art in the North* (3) Evans
The development of painting, sculpture, and architecture in the 16th and 17th centuries in Holland, Flanders, Spain, France, Germany, and England. (Spring—day.)
- 115 *Christian Iconography* (3) Leite
The origins and development of Christian symbols and themes from Early Christian to modern times. (Not offered 1964-65.)
- 116 *Classical Iconography* (3) MacDonald
The origin and development of myths in classical art. (Fall—day.)
- 120 *Art of China and Japan* (3) Kline
The architecture, painting, and sculpture of China, Korea, and Japan. (Not offered)
- 141 *Interior Decoration* (4) Kline and Staff
Lecture (2 hours), laboratory (3 hours). The principles of decoration dealing with furniture designs and complete layout, draperies, color, accessories, and lighting. Studio fee, \$5. (Fall—day.)
- 142 *House Planning* (3) Kline
The contemporary house for family living, including site problems, the case plan, materials of building, and climate conditioning. (Spring—day.)
- 143 *Folk Arts in America* (3) Kline
Ceramics, woodcarving, ironwork, decorative painting, weaving, and other crafts; selected references to American folk music. (Not offered 1964-65.)

THIRD GROUP

- 203 *Primitive Art** (3) Kline
The arts of prehistoric and primitive man in Europe in the pre-Columbian Americas, Oceania, and Africa. (Fall—day.)
- 207 *Modern Architecture* (3) Kline
The development of modern architecture and building technology in Europe and America from the late 19th century to the present. (Summer 1964.)
- 213 *Seminar in American Art* (3) Kline
(Not offered 1964-65.)
- 214 *Seminar in Naturalism and Realism* (3) Leite
A reading knowledge of French is desirable. (Not offered 1964-65.)
- 215 *Seminar in Romanticism* (3) Leite
A reading knowledge of French and German is desirable. (Not offered 1964-65.)
- 216 *Seminar in Classical Art* (3) MacDonald
(Fall—evening; summer 1964.)
- 217 *Seminar in Symbolism* (3) Leite
(Fall—day.)
- 218 *Studies in Classical Art* (3) MacDonald
(Spring—evening.)

* May be taken for undergraduate credit with the approval of the instructor.

261 *Art Theory and Criticism* (3)

History of theory and criticism with area of concentration selected from Classical, Medieval, Renaissance, and Modern fields. (Spring—day; summer 1964.)

The Staff

289-90 *Thesis* (3-3)

(Academic year—as arranged; summer 1964.)

The Staff

DRAWING AND PAINTING, SCULPTURE,
ADVERTISING DESIGN, AND CERAMICS

FIRST GROUP

21-22 *Basic Design** (3-3)

The fundamentals of two and three dimensional design. Material fee, \$10 a semester. (Academic year—day and evening; summer 1964.)

Teller and Staff

35-36 *Advertising Design I* (3-3)

Fundamentals of advertising and editorial layout. (Academic year—day and evening.)

Tanev and Staff

41-42 *Drawing I* (3-3)

An introductory course in object and figure drawing and mechanical perspective. (Academic year—day and evening; summer 1964—Art 41 (3).)

Russo

51-52 *Ceramics I* (3-3)

Basic techniques for clay preparation, hand forming, wheel throwing, and the application of slip glazes and various glazes through workshop and illustrated lectures. Material fee, \$25 a semester. (Academic year—day and evening; summer 1964.)

Lafean, Hara

57-58 *Introduction to Graphic Techniques* (3-3)

Exploration of the methods of intaglio, relief, serigraphy, and other composite methods. Studio fee, \$10 a semester. (Academic year—day and evening; summer 1964—Art 57 (3).)

Meyer

65-66 *Painting I* (3-3)

Primarily for majors. (Academic year—day and evening; summer 1964—Art 65 (3).)

The Staff

81-82 *Sculpture I* (3-3)

Material fee, \$10 a semester. (Academic year—day and evening; summer 1964.)

Warneke, Tavano

SECOND GROUP†

121-22 *Advanced Design* (6-6)

An advanced study in organic and stereometric design with special emphasis on the use of materials and their appropriate application to the problem. Studio fee, \$10 a semester. (Academic year—day and evening.)

Teller and Staff

123-24 *Design Workshop* (3-3)

Exploration of design possibilities in wood, metal, textile, plastics, and other materials with special emphasis on problems for teachers in the field. Studio fee, \$10 a semester. (Summer 1964.)

Teller

125-26 *Painting II* (6-6)

(Academic year—day and evening; summer 1964.)

The Staff

127-28 *Painting III* (6-6)

The Staff

* Art 21-22 is prerequisite to all other studio courses.

† Material fees for courses in sculpture and ceramics are to be paid at the Corcoran School of Art.

‡ All second-group courses may be repeated for credit with the approval of the Department.

16.32 *Ceramics II* (6-6)

Basic techniques in clay and glaze formation, advanced wheel throwing and hand forming, mosaic. Practical experience in display. Individual projects in a choice of techniques, and experimentation in the possibilities and limitations of the medium. Optional firing, ceramic design, current directions of the studio potter, especially in studio ceramics and environments. Material fee*, \$30 a semester. (Academic year—day and evening; summer 1964—Art 131 (3).)

Lafean

16.41 *Scitigraphy* (3-3)

Advanced problems in scitigraphy with emphasis on its aesthetic possibilities. Studio fee, \$10 a semester. Prerequisite: Art 37-58. (Academic year—day.)

Feller

16.52 *Ceramics III* (6-6)

Advanced glaze calculation, experimentation in reduction firing, technical problems in forming techniques, and problems in series production for the studio artist. Advanced decorating and finishing techniques. Studio teaching techniques and marketing procedures. Material fee*, \$30 a semester. (Academic year—day and evening; summer 1964—Art 151 (3).)

Lafean

17-58 *Graphics* (6-6)

Relief printing and wood block, with special reference to western and eastern techniques. (Academic year—day.)

Perlmutter

17-60 *Drawing II* (6-6)

Special problems in anatomy and drawing and painting of the life model in action. (Academic year—day.)

Russo

16. Workshop in Ceramics (3)

Practical use of ceramic equipment, study of ceramic materials, class projects for various age groups. Material fee*, \$15. (Summer 1964.)

Lafean and Staff

17-66 *Painting, Drawing, and Composition* (6-6)

(Academic year—day and evening.)

Archer

17-76 *Design II* (6-6)

Advanced problems in creative design and composition. (Academic year—day and evening; summer 1964—Art 176 (3).)

Warwick, Tutano

17-80 *Sculpture II* (6-6)

Practical life modeling and composition in clay, plaster and wood carving. Material fee*, \$30 a semester. (Academic year—day and evening; summer 1964—Art 179 (3).)

Warwick, Tutano

17-84 *Advertising Design II* (6-6)

Problems in the production of advertisements, posters, magazines, pamphlets, displays, exhibits, photography, and materials for television. (Academic year—day and evening.)

Faney and Staff

17-86 *Advertising Design III* (6-6)

Advanced problems and techniques in supervision and production of various commercial projects. (Academic year—day and evening.)

Faney and Staff

17-89 *Sculpture III* (6-6)

Advanced problems in modeling and direct carving. Prerequisite: 18 semester hours in sculpture. Material fee*, \$10 a semester. (Academic year—day and evening; summer 1964—Art 189 (3), Art 190 (2).)

Warwick

THIRD GROUP

16.52 *Ceramics II* (6-6)

Material fee*, \$30 a semester. (Academic year—day and evening; summer 1964—Art 151 (3).)

Lafean and Staff

* The fee for the course is optional and payment may be paid to the Chemical Institute of Art. The fee for the course may be waived for credit and the approval of the Department.

- 253 *Ceramics V* (6) Lefebvre and Staff
Material fee*, \$30. (Fall and spring—day and evening; summer 1964—Art 253 (3).)
- 265-66 *Painting IV* (6-6) The Staff
(Academic year—day and evening; summer 1964—Art 265 (3), Art 266 (3).)
- 275 *Painting V* (6) The Staff
(Fall and spring—as arranged; summer 1964—Art 275 (3).)
- 279-80 *Sculpture II* (6-6) Warneke, Turano
Material fee*, \$10 a semester. (Academic year—as arranged; summer 1964—Art 279 (3).)
- 281 *Sculpture V* (6) Warneke
Material fee*, \$10. (Fall and spring—as arranged; summer 1964—Art 281 (3).)
- 299-300 *Thesis* (3-3) The Staff
(Academic year—as arranged; summer 1964.)

MUSIC HISTORY AND LITERATURE AND MUSIC THEORY

FIRST GROUP

- 3 *Introduction to Music* (3) Steiner, Harrison
An introduction to the historical sequences of musical style, the elements of music, and the media of musical presentation. (Fall—day and evening; summer 1964.)
- 4 *Survey of Music Literature and Forms* (3) Steiner, Harrison
General study of musical forms, structures, and textures as well as the works of the principal composers. (Spring—day and evening; summer 1964.)
- 5 *Music Theory* (3-3) Harrison
Lecture (3 hours), laboratory (1 hour). Fundamentals of music—ear-training, sight-singing, notation, melody and harmonic dictation, principles and practical use of elements of music, including scales, keys, intervals, triads, chords, cadences, and basic harmonic contrapuntal practice. (Academic year—day.)

SECOND GROUP

- 103-4 *History of Music* (3-3) Steiner
The development of music in the Western World from the early Christian Era to the present. (Academic year—day; summer 1964.)
- 105 *Music of the Baroque Period* (3) Harrison
Study of the musical styles, techniques, and literature from 1600 to 1750. (Fall—day.)
- 106 *Music of the Classic Period* (3) Harrison
Study of styles, techniques, and literature from the 18th century schools through Haydn, Mozart, and Beethoven. (Spring—day.)
- 107 *Music of the Romantic Period* (3) Harrison
(Not offered 1964-65.)
- 109 *Orchestra Literature* (3) Steiner
Survey of the history and styles of orchestra literature; analysis of representative works. (Fall—day.)

* Material fees for courses in ceramics and sculpture are to be paid at the Corcoran School of Art.

- 110 *Chamber Music Literature* (3) Steiner
Survey of the history and styles of chamber music literature; analysis of representative works. (Spring—day.)
- 121 *The Opera* (3) Harrison
Survey of the history and styles of opera; analysis of representative works. (Fall—day.)
- 131-32 *Advanced Music Theory* (3-3) Parris
Practice in harmonic writing, figured and unfigured bass, secondary and altered chords, nonharmonic tones and extended modulations. Prerequisite: Music 5-6 or the equivalent. (Academic year—day.)
- 135 *Counterpoint* (3) Parris
Strict counterpoint up to four parts. Techniques of small contrapuntal forms. (Spring—evening.)
- 137 *Orchestration* (3) Parris
Instrumental orchestral scoring. (Fall—evening.)
- 138 *Form and Analysis* (3) Harrison
Analysis of musical forms in representative musical literature. (Spring—day.)

APPLIED MUSIC

All Applied Music courses may be repeated for credit.

FIRST GROUP

- 11 *Piano* (1) Tolson, Parris, Burke
Individual lesson ($\frac{1}{2}$ hour), required practice (3 hours). Studio fee, \$40. (Fall and spring—as arranged; summer 1964.)
- 12 *Piano* (2) Tolson, Parris, Burke
Individual lesson (1 hour), required practice (6 hours). Studio fee, \$80. (Fall and spring—as arranged.)
- 13 *Voice* (1) Zahawa
Individual lesson ($\frac{1}{2}$ hour), required practice (3 hours). Studio fee, \$40. (Fall and spring—as arranged; summer 1964.)
- 14 *Voice* (2) Zahawa
Individual lesson (1 hour), required practice (6 hours). Studio fee, \$80. (Fall and spring—as arranged.)
- 15 *Organ* (1) Scribner
Individual lesson ($\frac{1}{2}$ hour), required practice (3 hours). Studio fee, \$40. (Fall and spring—as arranged; summer 1964.)
- 16 *Organ* (2) Scribner
Individual lesson (1 hour), required practice (6 hours). Studio fee, \$80. (Fall and spring—as arranged.)
- 17 *Orchestral Instrument* (1) The Staff
Individual lesson ($\frac{1}{2}$ hour), required practice (3 hours). Studio fee, \$40. (Fall and spring—as arranged; summer 1964.)
- 18 *Orchestral Instrument* (2) The Staff
Individual lesson (1 hour), required practice (6 hours). Studio fee, \$80. (Fall and spring—as arranged.)

- 51 *Orchestra* (1) Steiner
Preparation and performance of orchestral literature. Prerequisite: audition before Director. (Fall and spring—evening.)
- 53 *Chorus* (1) Harmon
Preparation and performance of choral literature. Prerequisite: audition before Director. (Fall and spring—evening.)

SECOND GROUP

Before admission to second-group courses in Applied Music, the student must demonstrate, in addition, that he meets departmental requirements. The studio fee is waived for full-time music majors.

- 111 *Piano* (1) Tolson, Parris
Individual lesson (1½ hour), required practice (5 hours). Studio fee, \$40. (Fall and spring—as arranged; summer 1964.)
- 112 *Piano* (2) Tolson, Parris
Individual lesson (1 hour), required practice (10 hours). For music majors only. Studio fee, \$120. (Fall and spring—as arranged.)
- 113 *Voice* (1) Zabawa
Individual lesson (1½ hour), required practice (5 hours). Studio fee, \$40. (Fall and spring—as arranged; summer 1964.)
- 114 *Voice* (2) Zabawa
Individual lesson (1 hour), required practice (10 hours). For music majors only. Studio fee, \$120. (Fall and spring—as arranged.)
- 115 *Organ* (1) Scribner
Individual lesson (1½ hour), required practice (5 hours). Studio fee, \$40. (Fall and spring—as arranged; summer 1964.)
- 116 *Organ* (2) Scribner
Individual lesson (1 hour), required practice (10 hours). For music majors only. Studio fee, \$120. (Fall and spring—as arranged.)
- 117 *Orchestral Instrument* (1) The Staff
Individual lesson (1½ hour), required practice (5 hours). Studio fee, \$40. (Fall and spring—as arranged; summer 1964.)
- 118 *Orchestral Instrument* (2) The Staff
Individual lesson (1 hour), required practice (10 hours). For music majors only. Studio fee, \$120. (Fall and spring—as arranged.)

Biochemistry

Professor C. R. Townsend (Chairman)
Professorial Lecturers W. R. Carroll, Arthur Weissbach, Leon Swell, Sidney Uden
Junior C. A. Koshen, W. W. Burr, R. W. Albers, R. O. Brady, Jr.
Adjunct Professor B. W. Smith, G. V. Vahouny, J. M. Bailey
Assistant Professor A. R. Bender

Special Lectures: H. H. W. Winkler, Walter Merten

221-22 *General Biochemistry* (4-4) Vahony
A lecture and laboratory course for nonmedical students. Prerequisite: Chemistry 102.
Material fee, \$15 a semester. (Academic year—TTu 3-12 am.)

224 *Biochemistry of the Enzymes* (1-1) A. Weissbach
Lecture course dealing with the biochemistry of the enzymes and enzyme reactions.
Prerequisite: Biochemistry 113 or 221. (1964-65 and alternate years) course: Th 5-6 pm.

225-26 *Biochemical Procedures* (1-1) Smith and Staff
A laboratory course. Material fee, \$16 a semester. (Academic year—as arranged.)

227-28 *Biochemistry Seminars* (1-1) The Staff
The current literature in the field of biochemistry, mainly for graduate students but open to a limited number of specially qualified medical students. (First half: F 5-10 pm. Second half: F 4 pm.)

232 *Proteins and Amino Acids* (1-1) Carroll
A lecture course. Prerequisite: Biochemistry 113 or 221. (Spring—W 5 pm.)

241 *Isotopes* (2) Bost
General characteristics of isotopes and their applications in biology. Attention will be given to counting, health physics and radiation safety, autoradiography and chromatography. (Spring—F 8 am.)

240-50 *Introduction to Medical Research** (3-3) Bailey
Primarily for graduate students. A semester-size introduction to the major medical research techniques (chemical, statistical, physical, chemical, electrical, and radioisotopes) as applied to biological materials in the medical sciences. Laboratory fee \$7.50 a semester. (Academic year—W 1-5 pm.)

251 *Carbohydrate Metabolism* (1-1) A. Weissbach
A lecture course. Prerequisite: Biochemistry 114 or 222. (1965-66 and alternate years—spring—Th 5 pm.)

254 *Biochemistry of the Lipids* (1-1) Swell, Trumbull
A lecture course. Prerequisite: Biochemistry 114 or 222. (Spring—S 12 noon.)

255-56 *Research in Biochemistry* (arr.) The Staff
(Academic year—as arranged.)

257-58 *Thesis* (3-3) The Staff

Biology

See "Botany".

*This is a noncredit course. The lecture portion is held in the Department of Biology, 100

Botany

Professors R. B. Stevens* (Chairman), R. L. Weintraub

Professorial Lecturer L. B. Smith

Associate Professors J. M. Kaper (Research), Caroline Adams, Kittie Parker (Visiting)

Associate Professorial Lecturers R. S. Sigafos, Edward Hacksaylo, H. M. Cathey,

R. N. Stewart, W. A. Shropshire, Jr.

Lecturer M. M. Marzullo

BIOLOGY

FIRST GROUP†

1-2 Introductory Biology† (4-4)

An interdepartmental course. Lecture (2 hours), laboratory (4 hours). This course is designed to provide the nonscience student with an understanding of the life sciences and to serve as a basis for those who may wish to continue in some aspect of biology. It is the introductory course leading to all second- and third-group courses in botany and zoology, and is taught jointly by the staff members of the two departments. Designed to be taken in either sequence; students may be registered for either 1 or 2 at the beginning of the academic year, depending on laboratory space available. Material fee, \$10 a semester. (Biology 1—Plant Sciences (44): fall and spring—day and evening; summer 1964. Biology 2—Animal Sciences (44): fall and spring—day and evening; summer 1964.)

BOTANY

SECOND GROUP*

104 Field Botany—Lower Plants (3)

Lecture (1 hour), laboratory and field (4 hours). A course, primarily for nonspecialists, emphasizing algae, mosses, and ferns. (1964 and alternate summers.) Adams

105 Field Botany—Seed Plants (3)

Lecture (1 hour), laboratory and field (4 hours). A course, primarily for nonspecialists, emphasizing local flora. (1965 and alternate summers.) Parker

106 Organic Evolution (3)

Theories of organic evolution and present ideas on the principal lines of development in the plant and animal kingdoms; review of the contributions to an understanding of the mechanisms involved in this process. (1964-65: spring—evening; 1965-66: spring—day.) Munson

109-10 Plant Morphology (3-3)

Lecture (2 hours), laboratory (2 hours). Material fee, \$8 a semester. and a terrace years. Adams (1965-66)

* For full-time students during semester 1964-65.
† Biology 1-2 is prerequisite to all second-group courses in Botany, except by permission of the instructor.
‡ An interdepartmental course offered by the Departments of Botany and Zoology. Students may register in either department.

- 113 Plant Microtechnique** (3) Adams
Lecture (1 hour), laboratory (4 hours). An introduction to techniques and problems involved in the preparation of botanical materials for morphological examination. Material fee, \$10. (1964-65 and alternate years: fall—day.)
- 115-16 Cytology*** (3-3) Stewart
Lecture (1 hour), laboratory (4 hours). The morphological and physiochemical properties of plant and animal cells and their components. Preparation of material for study. Prerequisite: one year of chemistry and two years of biological sciences. Material fee, \$11 a semester. (Academic year—day.)
- 125-26 Plant Taxonomy** (3-3) Parker
Lecture (1 hour), laboratory and field (4 hours). (1965-66 and alternate years.)
- 127 Genetics*** (3) Stewart
A lecture course in which the general principles are illustrated with specific examples of inheritance in plants and animals, including man. (Fall—evening: 1964 and alternate summers.)
- 131-32 Mycology** (3-3) Stevens, Haeckaylo
Lecture (2 hours), laboratory (2 hours). Material fee, \$8 a semester. (1964-65 and alternate years: academic year—evening.)
- 133-34 Plant Pathology** (3-3) Stevens
Lecture (2 hours), laboratory (2 hours). Material fee, \$8 a semester. (1965-66 and alternate years.)
- 135-36 Plant Physiology** (3-3) Weintraub, Cathey
Lecture (2 hours), laboratory (2 hours). Prerequisite: Botany 140 or permission of the instructor. Material fee, \$8 a semester. (1964-65 and alternate years: academic year—day.)
- 139-40 Cell Physiology*** (3-3) Shropshire, Weintraub
(Botany 139-40 replaces former 140)
The fundamental physiology of protoplasm. Prerequisite: Chemistry 12. Students who received credit for Botany 140 prior to 1964-65 may register for the second semester of Botany 139-40. (Academic year—evening: 1965 and alternate summers.)
- 141-42 Plant Ecology** (3-3) Sigafous
Lecture (1 hour), laboratory and field (4 hours). (1964-65 and alternate years: academic year—evening.)

THIRD GROUP

- 201-2 Seminar: Cytology*** (3-3) (Academic year—evening.)
A study in the current literature in experimental cytology. (Academic year—evening.)
- 221 Seminar: Plant Taxonomy†** (3) Smith, Parker
(1964-65 and alternate years: fall—evening.)
- 222 Seminar: Mycology and Plant Pathology†** (3) Stevens
(1964-65 and alternate years: spring—evening.)
- 225 Seminar: Plant Physiology†** (3) Weintraub, Cathey
(1965-66 and alternate years.)
- 242 Seminar: Plant Ecology†** (3) Sigafous
(1965-66 and alternate years.)

* An independent course offered by the department of Botany and Zoology. Students may register for other departments.

† This seminar may be repeated once for credit.

252 *Seminar: Plant Ecology* (2)

(1965-66 and alternate years)

Kaper

295-96 *Research* (1-1T)

The Staff

Fee to be arranged. (Academic year—as arranged; summer 1964.)

The Staff

299-300 *Thesis* (1-1)

(Academic year—as arranged; summer 1964.)

*Business Administration**Business and Public Administration*

See "Government and Business".

Chemistry

Professors B. D. Van Evera, S. N. Wicks, C. R. Naeser (*Chairman*), R. C. Vincent, W. F. Sager, R. E. Wood, F. P. Petros, W. E. Schmidt, D. G. White, J. W. Harkness
 Associate Professor/Lecturer Abraham Schoedel
 Assistant Professors Margaret Eklow, D. H. Fargis, Norman Ellipson
 Instructor G. W. Madsen

FIRST GROUP

3-4 *Fundamentals of Physical Science* (4-4)

Schmidt, Fargis

A year course; credit is not given for the first half until the second half is completed. Lecture (16 hours), laboratory (14 hours). Selected topics from chemistry, physics, astronomy, and geology are integrated to introduce the student to the basic methods and achievements of physical science. Laboratory fee, \$11 a semester. (Academic year—day; summer 1964.)

11-12 *General Chemistry* (4-4)

The Staff

A year course; credit is not given for the first half until the second half is completed. Lecture (16 hours), laboratory (14 hours), recitation (1 hour). Elementary course in general chemistry. Prerequisite for one year of high school algebra. Laboratory fee, \$46 a semester. (First half—day and evening; summer 1964. Second half—spring—day and evening; summer 1964.)

13-14 *General Chemistry* (4-4)

White

A year course; credit is not given for the first half until the second half is completed. Lecture (16 hours), laboratory (14 hours), recitation (1 hour). A terminal course in general chemistry for students in the School of Engineering and Applied Science. Prerequisite: Physics 1-2; Mathematics 21 or 27. Laboratory fee, \$18 a semester. (Academic year—day and evening.)

- 15 *General Chemistry (Accelerated)* (4) Naeser
Lecture (3 hours), laboratory (3 hours), recitation (1 hour). An intensive one semester course in general chemistry. Prerequisite: high school chemistry accompanied by laboratory work and a satisfactory grade on either the College Entrance Examination Board Achievement Test in Chemistry or on the placement examination given by the Department of Chemistry prior to registration, and high school physics. Laboratory fee, \$13. (Fall—day.)
- 21 *Qualitative Inorganic Analysis* (4) Vincent
Lecture (2 hours), laboratory (6 hours). Theoretical and practical study of methods of separating and identifying the more common cations and anions using semi-micro techniques. Prerequisite: Chemistry 12 or 16, or a placement examination which may be waived at the discretion of the instructor. Laboratory fee, \$18. (Fall—day and evening; spring—day; summer 1964.)
- 22 *Elementary Quantitative Analysis* (4) Schmidt
Lecture (2 hours), laboratory (6 hours). Theory and practice of quantitative analysis by classical volumetric and gravimetric methods and introduction to instrumental analysis. Prerequisite: Chemistry 21. Laboratory fee, \$18. (Fall—day; spring—day and evening; summer 1964.)

SECOND GROUP

- 111 *Physical Chemistry* (3) Wood
Gas laws, chemical thermodynamics, solution chemistry, chemical equilibria, and other topics are introduced. Prerequisite: Chemistry 22; Mathematics 22; Physics 1-2 or 101B, 14, or 15. (Fall—day and evening; summer 1964.)
- 112 *Physical Chemistry* (3) Wood
Chemical kinetics, chemical statistics, electrochemistry, and other topics are introduced. Prerequisite: Chemistry 111. (Spring—day and evening.)
- 113 *Physical Chemistry Laboratory* (2) The Staff
The laboratory complement of Chemistry 111; previous satisfactory completion of or concurrent registration for Chemistry 111 is required. Laboratory fee, \$16. (Fall—day and evening; summer 1964.)
- 114 *Physicochemical Measurements* (3) The Staff
The integrated laboratory work associated with Chemistry 112 and 113; principles and applications of physicochemical methods and instruments to problems in chemical thermodynamics and kinetics and in structural and analytical chemistry. Prerequisite: Chemistry 111, 112. Prerequisite or concurrent registration: Chemistry 112, 113. Laboratory fee, \$18. (Spring—day and evening.)
- 122 *Instrumental Analysis Lectures* (2) Schmidt
Theory of instrumental methods in qualitative and quantitative analysis; determination of structure, and use of reaction mechanisms with emphasis on electroanalysis, spectroscopy, and chromatography. Correlated with laboratory course: Chemistry 116. Prerequisite: Chemistry 22, 111, 112. Concurrent registration: Chemistry 112, 116. (Spring—day and evening.)
- 124 *Descriptive Inorganic Chemistry* (3) Naeser
An intermediate level course emphasizing the descriptive chemistry of the elements. Prerequisite: Chemistry 22, 114, 115. (Spring—day.)
- 125 *Inorganic Chemistry: Preparations* (2-2) Petros
Application of the techniques of inorganic chemistry to the preparation and purification of a line of selected substances. Prerequisite: Chemistry 112. Prerequisite or concurrent registration: Chemistry 114. Laboratory fee, \$18 a semester. (First half—day-evening; second half—day-evening.)
- 131 *Organic Chemistry* (4-5) Wrentham, Sager
A year course; credit is not given for the first half until the second half is completed.

- Chemistry of the compounds of carbon. Prerequisite: Chemistry 21* and high school Physics or Physics I. Laboratory fee: Chemistry 151, \$12; Chemistry 152, \$20. (First half: fall—lecture (3 hours), laboratory (3 hours), day and evening; summer 1964. Second half: spring—lecture (3 hours), laboratory (6 hours), day and evening; summer 1964.)
- 153 *Special Laboratory in Organic Chemistry* (1) Wrenn, Sager
A course designed to give the chemistry major additional and broader training in the technique of organic chemistry than is obtained in Chemistry 151-52. Prerequisite or concurrent registration: Chemistry 22, 152. Laboratory fee, \$12. (Chemistry 155 may be substituted for this course.) (Spring—day and evening.)
- 155 *Organic Chemistry: Preparations* (2 of 3) Wrenn
Synthesis of organic compounds and application of the technique of organic chemistry to the preparation of pure compounds, using larger amounts and greater refinements than in Chemistry 151-52. Prerequisite: Chemistry 22, 152. Laboratory fee, \$10.50 a semester hour. (Spring—evening.)
- 156 *Qualitative Organic Analysis* (3) Wrenn
Lecture (1 hour), laboratory (6 hours). Identification of pure organic compounds; separation of mixtures, and identification of their components. Required of all students planning thesis work in organic chemistry. Prerequisite: Chemistry 22, 152. Laboratory fee, \$18. (Fall—evening.)
- 191 *History of Chemistry* (2) Perros (1965-66)
Historical development of chemistry. Prerequisite: Chemistry 22, 152. and alternate years.)
- 193 *Chemical Literature* (1) Wrenn
A general course in chemical literature with reference work and reports. Prerequisite: Chemistry 22, 152. Prerequisite or concurrent registration: Chemistry 111, 112. (Fall—evening.)

THIRD GROUP†

- 203 *Chemical Kinetics* (2) Wood
The rates of chemical reactions and the factors influencing them. Prerequisite: Chemistry 112. (1965-66 and alternate years.)
- 211-12 *Physical Chemistry* (2-1) Wood
Same as Chemistry 111 and 112. Admission only by departmental permission. Credit will be assigned only upon the satisfactory completion of Chemistry 213. (Academic year—day and evening.)
- 213 *Chemical Thermodynamics* (3) Wood
Application of thermodynamics to chemical problems. Thermochemistry, homogeneous and heterogeneous equilibria, statistical calculation of thermodynamic properties, electrochemistry. Prerequisite: (1) grade A or B in Chemistry 111 and 112, or (2) satisfactory in Chemistry 211-12, or (3) qualifying grade in physical chemistry qualifying examination. (Fall—evening.)
- 216 *Statistical Mechanics as Applied to Chemistry* (3) Sager
An introduction to classical and quantum statistics designed to acquaint the student with the basic principles and application of the method. Prerequisite or concurrent registration: Chemistry 213 or permission of instructor. (1964-65 and alternate years; fall—evening.)
- 217 *Chemical Bonding* (2) Sager
A survey of modern developments in the theory of valence with emphasis on application to problems of stability and structure of complex molecules. Prerequisite: Chemistry 213 or permission of instructor.

* This prerequisite may be waived in the case of the student who has earned a grade of C or better in Chemistry 11 or 12 within the past two years or by a placement examination.

† The appropriate qualifying examination is prerequisite to all "Advanced" courses.

istry 213 or permission of instructor. (1964-65 and alternate years, spring-evening.)

219-20 *Spectrochemistry I-II* (3-3)

Filipescu

A study of the energetic states of molecules under the influence of electromagnetic radiation leading to photochemical reactions or to spectroscopic phenomena. Prerequisite to Chemistry 219: Chemistry 112. Prerequisite to Chemistry 220: Chemistry 112 and 152. (1964-65 and alternate years: academic year-evening.)

221-22 *Advanced Analytical Chemistry** (2 or 3-2 or 3)

Eargle, Schmidt

Lecture (2 hours), laboratory (3 hours—optional). Theory and application of recent spectrometric methods of analysis including electrical, magnetic, and optical instrumentation. Prerequisite: Chemistry 22, 122, and qualifying examination. The lectures may be taken for 2 credits a semester without laboratory work, either half may be taken first. Laboratory fee, \$11 a semester. (First half, not offered 1964-65. Second half: fall—evening.)

231-32 *Special Topics in Inorganic Chemistry* (2-2)

White, Petros

A series of one-semester courses covering such topics as (1) chemistry of the less familiar elements, (2) organometallic, organosilicon, and carborane compounds, and (3) coordination chemistry. Prerequisite: Chemistry 134 or 235. (Academic year—evening.)

234 *Radiochemistry* (2)

Schwabed

The preparation, properties, and uses of radioactive isotopes, both natural and artificial. Prerequisite: Chemistry 235-36. (1964-65 and alternate years: fall—evening.)

235-36 *Advanced Inorganic Chemistry** (3-2)

White

Application of modern chemical theories to inorganic substances and reactions, followed by a detailed study, developed from the periodic table, of the chemistry of the more common elements. Prerequisite: Chemistry 232 and qualifying examination. Prerequisite or concurrent registration: Chemistry 111, 112. (Academic year—evening.)

251-52 *Advanced Organic Chemistry** (3-3)

Sager

Synthesis, reactions, and properties of carbon compounds; fundamental theories of organic chemistry. Prerequisite: Chemistry 152 and qualifying examination. Prerequisite or concurrent registration: Chemistry 111, 112. (Academic year—evening.)

253 *Advanced Synthetic Organic Chemistry** (3)

Wronen

Study of reactions employed in the synthesis of organic compounds. Prerequisite: Chemistry 251. (Spring—evening.)

257 *Theoretical Organic Chemistry* (3)

Sager

Survey of modern theories of organic chemistry with emphasis on reaction mechanisms. Prerequisite: Chemistry 252. (1965-66 and alternate years.)

259-60 *Polymer Chemistry* (3)

Filipescu

A study of the preparation, properties, and structure of macromolecules. Prerequisite: Chemistry 112 and 152. (1964-65 and alternate years: academic year—evening.)

291-92 *Seminars: Recent Developments in Chemistry* (1-1)

The Staff

(Academic year—day.)

295-96 *Research* (arr.)

The Staff

Research on problems approved by the Staff. Open to qualified students with advanced training. Laboratory fee, \$7.50 a semester hour. (Academic year—as arranged; summer 1964.)

299-300 *Thesis* (3-3)

The Staff

Laboratory fee, \$18 a semester.

(Academic year—as arranged; summer 1964.)

*The appropriate qualifying examination is prerequisite to all "Advanced" courses.

Chinese

See "Classical Languages and Literatures", below.

Classical Languages and Literatures

Professor J. F. Latimer (Chairman)

Associate Professor of Lectures J. C. Wiles, Sylvia Gerber

Lecturer A. B. Seidman

Associate D. B. Beers

LATIN AND GREEK

FIRST GROUP

1-2 *First-year Latin* (3-3)

A year course; credit is not given for the first half until the second half is completed. Functional presentation of the essentials of the language, with appropriate reading selections; development of English derivatives; introduction to Roman life and literature. (Academic year—day.)

The Staff

3-4 *Second-year Latin* (3-3)

A year course; credit is not given for the first half until the second half is completed. A continuation of the first-year course, but with increased emphasis on Latin readings which illustrate Roman life and literature, continuation of vocabulary building in English. Prerequisite: Latin 1-2 or two years of high school Latin. (Academic year—day.)

Beers

11-12 *First-year Greek* (3-3)

A year course; credit is not given for the first half until the second half is completed. Essentials of grammar with appropriate reading selections. (Academic year—evening.)

Beers

13-14 *Second-year Greek* (3-3)

A year course; credit is not given for the first half until the second half is completed. Review of grammar; rapid reading from selected Greek authors. (1965-66 and alternate years.)

Latimer

40-50 *Latin Grammar and Readings* (3-3)

Primarily for graduate students preparing for reading examinations. Undergraduates advised by permission of the instructor. No academic credit for graduate students. First half consists of Latin grammar with appropriate reading selections. Second half continuation of grammar with selections from various Latin authors for rapid reading. (Academic year—alternate years.)

The Staff

51-52 *Introduction to Latin Prose and Poetry* (3-3)

Selections from Cicero and Caesar, Vergil and Ovid. Prerequisite: Latin 3-4 or three years of high school Latin. (Academic year—day.)

Latimer

SECOND GROUP

- 101-2 *Roman Comedy* (3-3) The Staff
Selected plays from Plautus and Terence. Prerequisite: Latin 51-52 or permission of the Instructor. (1965-66 and alternate years.)
- 111-12 *Roman History and Philosophy* (3-3) Latimer
Selections from Cicero, Sallust, Lucius, and Livy. Prerequisite: Latin 51-52 or permission of the Instructor. (Academic year-day.)
- 121-22 *Roman Lyric Poetry and Satire* (3-3) The Staff
Selections from Catullus, Horace, Juvenal, and Martial. Prerequisite: Latin 101-2 or permission of the Instructor. (1965-66 and alternate years.)

COURSES IN ENGLISH TRANSLATION

FIRST GROUP

- 71-72 *Greek and Roman Backgrounds in Literature* (4-3) Latimer
Selected Greek and Roman backgrounds and their literary influence. (First half: spring-day, Second half: fall-day.)

SECOND GROUP

- 101-10 *Greek and Roman Drama* (4-3) Latimer
Selected tragedies of Aeschylus, Sophocles, Euripides, and Seneca; selected comedies of Aristophanes and Menander. Prerequisite: Latin and Terence. (Academic year-day.)

CLASSICAL HEBREW

FIRST GROUP

- 21-22 *First-year Classical Hebrew* (3-3) Seidman
A year course, credit is not given for the first half until the second half is completed. Fundamental principles of the language with practice in reading simple narrative texts. (Academic year-day.)
- 21-21 *Second-year Classical Hebrew* (3-3) Seidman
A year course, credit is not given for the first half until the second half is completed. Review of grammar and exercises of selected passages from the Hebrew text of the Old Testament. (1965-66 and alternate years.)

CHINESE (MANDARIN)

FIRST GROUP

- 1-2 *First-year Chinese* (3-3) Wang
A year course, credit is not given for the first half until the second half is completed. For beginners. Pronunciation, vocabulary, reading, writing, basic Chinese conversation. Aural training, oral presentation, extensive language workshop. (First half: fall and spring; Second half: fall and spring; evening, summer 1964.)

33-34 *Second-year Chinese* (3-3)

A year course: credit is not given for the first half until the second half is completed. Continuation of grammar and spoken Chinese, more emphasis on the written language, reading, writing commonly used Chinese characters, reading selected writings. Aural training, oral practice in electronic language workshop. Workshop fee, \$6 a semester. Prerequisite: Chinese 31-32 or the equivalent. (First half: fall and spring—evening; Second half: spring—evening.) Wang

RELATED COURSES IN OTHER DEPARTMENTS

- Art 101 *Greek and Roman Architecture* (3)
 Art 102 *Greek and Roman Sculpture* (3)
 Art 111 *Classical Archeology* (3)
 Education 141 *Teaching Latin* (3)
 Philosophy 111 *History of Philosophy* (3)

Economics

Professors A. E. Burns, D. S. Watson, T. W. Holland, J. W. Kendrick*, W. E. Schmidt*, S. Levitan (*Research*), J. W. Skinner (*Chairman*), C. T. Stewart, Jr. (*Research*), C. E. Galbreath, Joseph Aschmann

Professorial Lecturer R. F. Moor

Associate Professor R. P. Sharkey

Associate Professorial Lecturers R. L. Sammons, D. J. Edwards, Henry Solomon

Assistant Professors Ching-Yao Hsiao, S. J. Hunter, Mary Holman (*Research*), William Long

Lecturers Paul Gekker, S. E. Haber

FIRST GROUP

1-2 *Principles of Economics†* (3-3)

Lectures (1 hour), recitation (1 hour). Survey of the major economic principles, institutions, and problems in contemporary life. Economics 1 is prerequisite to Economics 2. (First half: fall and spring—day and evening; summer 1964. Second half: fall—evening; spring—day and evening; summer 1964.) Skinner and Staff

SECOND GROUP‡

101-2 *Economic Analysis* (3-3)

Analysis of demand, supply, and pricing; theory of national income determination. (First half: fall—day and evening; spring—evening; summer 1964. Second half: fall—day; spring—day and evening; summer 1964.) The Staff

104 *History of Economic Thought* (3)

History of the major schools of economic thought; influence of changing problems on the development of economic theory. (Spring—day.) Burns

* On leave of absence from 1963-64.
 † Economics 1-2 is a prerequisite to all other courses in Economics.

- 105 *Business Cycles* (3) Kendrick
Description and analysis of the facts of economic instability, survey of recent business cycle theory, forecasting, and consideration of counter-cyclical policies. (Fall—evening.)
- 121 *Money and Banking* (3) Hunter
Theory of money, credit, and banking; commercial banking and the Federal Reserve System; other financial institutions; international aspects of money; current financial problems. (Fall—day and evening; spring—evening; summer 1964.)
- 123 *Monetary Theory and Policy* (3) Hunter
Principal contemporary theories, background of recent monetary policy. (Spring—day.)
- 133 *The Economy of the Soviet Union* (3) Gekker
Development and main features of the economic life of the Soviet Union. (See History 145-46 and Geography 196.) May be taken for graduate credit with the approval of the instructor. (Fall—evening.)
- 141 *Unionism and Collective Bargaining* (3) Holland
The development and characteristics of American unionism and collective bargaining as economic and social institutions; appraisal of economic and social aspects, public policies and controls. (Fall—day.)
- 142 *Labor Economics* (3) Holland
Characteristics of the American labor force; operations of labor markets, wage theories and practices; impact of collective bargaining; causes and characteristics of unemployment, public policies and programs. (Spring—day.)
- 161-62 *Public Finance and Taxation* (3-3) The Staff
General survey of government expenditures; sources and methods of taxation; economic effects of expenditures, taxes, and of government debt policies. (Academic year—evening.)
- 165 *Government Control of Economic Activity* (3) Watson
Changing role of government in promoting and regulating economic activity, types and spheres of control. (Fall—day.)
- 181-82 *International Economics* (3-3) Aschheim
First half: survey of the theory of international trade, factor movements, and balance-of-payments adjustment. Second half: analysis of modern international economic problems including problems of less developed countries. (Academic year—day and evening.)
- 185-86 *Economic History and Problems of Latin America* (3-3) The Staff
Evolution of the economics of Latin America with particular emphasis on present structures and problems, considered in the regional, country, and sub-regional contexts. Economics 123, special attention to Middle America; Economics 186, special attention to South America. (Academic year—evening.)
- 193 *Primer in Economics* (3) Skwyder
Comprehensive survey of economics. Prerequisites: Economics 101-2 and 121. (Fall and spring—as arranged.)

THIRD GROUP

- 201-2 *History and Literature of Economic Thought* (3-3) Burns
Critical analysis and interpretation of the development and the literature of economic thought, theories, and problems of the major types of theory, and their relation to present problems and policies. (Academic year—evening.)
- 203-4 *Contemporary Price Theory* (3-3) Watson
The theory of relative prices from Marshall to the present. (Academic year—evening.)

- 205 *Theory of Employment and Income* (3) Kendrick
Determinants of the level of employment and income. Keynesian and classical systems contrasted, and recent literature on the subject. (Fall—evening.)
- 206 *Business Cycle Analysis* (3) Kendrick
Empirical analysis of American business cycles; evaluation of the methodology and nature of the National Bureau of Economic Research. Statistical tests of theories of the business cycle. (Spring—evening.)
- 208 *The National Income* (3) Kendrick
The theory of economic aggregates, measurement and policy aspects of national income. (Spring—evening.)
- 210 *Seminar in Economics* (3) Skinner
Methodology of economics, integration of economic theories, methods of research. Open only to students who have completed fifteen hours of graduate work in economics. (Academic year—evening.)
- 212 *Seminar in Price Theory* (3) Watson
Advanced topics in the theory of relative prices. Prerequisite: Economics 203-4 or the equivalent. (Fall—evening.)
- 213 *Economic Thought in the 20th Century* (3) Burns
Comparative of Economics 201-2. The principal trends in economic thought during the present century. (Fall—evening.)
- 215-16 *Mathematical Economics* (3-3) Solomon
Introduction to the uses of mathematics in economic theory. (Academic year—evening.)
- 217-18 *Survey of Economics* (3-3) Watson
Survey of economic analysis and policy. Not open to graduate students in economics or economic policy. (Academic year—evening.)
- 219 *Managerial Economics* (3) Watson
Analysis of price, production, and inventory policies of business firms. 1964-65. (Not offered)
- 221-22 *Monetary Theory* (3-3) Hunter
Contemporary monetary theories. (Academic year—evening.)
- 223-24 *Monetary Policy and Central Banking* (3-3) Aschheim
The money system in its relation to national income, monetary policies of the Federal Reserve and other central banking systems. (Academic year—evening.)
- 231-32 *Quantitative Economics* (3-3) Solomon
Selected topics in quantitative economics. (Academic year—evening.)
- 241 *Unionism, Collective Bargaining, and Labor Economics* (1) Holland
An accelerated introductory course in labor economics primarily for graduate students in Personnel Administration. (Fall—evening.)
- 244 *Problems in Unionism, Collective Bargaining, and Labor Economics* (3) Holland
Concurrent study of economic, social, and legal aspects of labor relations and labor economics. (Spring—evening.)
- 246 *Foreign Labor Movements* (3) Holland
Labor in the economic, social, and political structures of selected foreign countries. (Spring—evening.)
- 247 *Labor Relations in the Federal Service* (3) Holland
Comparative and comparative with the United States. (Fall and spring—evening.)
- Admission by permission of the instructor. (Fall and spring—evening.)

- 251-52 *Economic Development* (3-5)
The theories and problems of economic growth, with special attention to the problems of underdeveloped countries. (Academic year—evening.)
- 253 *Productivity Analysis* (3)
Concepts and measures of productivity; relations to economic growth and to structural changes in the American economy. (Fall—evening.) Kendrick
- 261-62 *Public Finance and Fiscal Policy* (3-3)
Special problems in contemporary public finance and fiscal policy. (Academic year—morning.) Moor
- 263-264 *Theory of Public Finance* (3-3)
Concepts for the allocation of government expenditures; principles of taxation; fiscal policy for stable growth. (Academic year—evening.) The Staff
- 265-66 *Theory of Economic Policy* (3-3)
The nature, forms, methods, and objectives of economic policy; the relation of monetary changes to economic prices. (Academic year—morning.) Watson
- 267 *The Soviet Economy* (3)
Development of the Soviet-type economy; organization, influences, and problems; monetary, fiscal, production, education, foreign trade, economic growth. (See also History 135-46, 247-48, and Geography 166.) (Spring—morning.) Gekker
- 270 *Econometrics I: Introduction to Econometric Studies** (2)
(Fall—evening.) Brown
- 281-82 *International Economics* (3-3)
First half: the theory of international trade and factor movements. Second half: the theory of balance of payments adjustment. (Academic year—evening.)
- 284 *United States Foreign Economic Policy* (3)
Analysis of foreign aid programs; international, monetary and monetary policy of the United States; United States and international economic cooperation. (One offered each year.) Schmidt
- 285-86 *Economic Development of Latin America* (3-3)
Current policies and programs; capital formation; public and private foreign investment; economic, social and technological problems of development. (Academic year—morning.) Simmons
- 287-88 *Latin America: Trade and Commodity Policy* (3-3)
Trade and exchange control systems; bilateral and general commercial agreements; terms of trade. (Not offered since 1963.)
- 290 *Seminars in International Economics* (3)
Advanced topics in international economics. Prerequisite: Economics 281-82 or the equivalent. (1963-66 and alternate years) (Spring—evening.) Schmidt
- 291-292 *Topics* (3-3)
(Academic year—as arranged; summer 1964.) The Staff

Education

Professors B. S. Root (*Chairman*), G. L. Angel, W. T. Carroll, F. N. Hamblin, W. A. McCauley*, Carol St. Cyr, Perry Botwin

Professorial Lecturers Madeline Remickson, H. O. Johnson, Anthony Marinaccio, J. B. Hodgson, J. P. Walsh, D. D. Daifland, J. C. Long, J. E. Rogers, H. M. Wilson, Roy Edolbert, H. H. Kempfer, F. E. Wellman, Ruth Newman

Associate Professors Mary Coleman, H. G. Detwiler, R. E. Baker, Martha Rashid, R. W. Elder, J. W. Suber, S. R. Westerlund

Associate Professorial Lecturers LuVonne Walker, Eugenia Nowlin, Beverly Crump, John Garbaczynski, Horst Mitchell, Zella Kosh, C. O. McDaniels, W. E. Amos, Marcella Bertolotti, N. J. Long

Assistant Professors J. G. Boswell, Margaret McIntyre, R. L. Williams, Joanne Parker
Lecturers R. J. Kubalak, Florence Rodding, Clarke Trimble, Maxine Teetsel, Mary Tronice, Shirely Mettune, David Iwamoto

A Reading Clinic

Diagnosis of reading difficulties; individual or group lessons without academic credit. Fees: for individual diagnosis, \$6 a lesson; for individual instruction, \$6 a lesson; for instruction in small groups with common reading difficulties, \$3.75 (\$3.25 for students currently enrolled in the University).

Coleman and Staff

SECOND GROUP

103 *Human Development, Learning, and Teaching* (3) McIntyre, McCune
Lecture (2 hours), conference (1 hour), field work (2 hours). For the general student as well as the prospective teacher. Principles of effective teaching based on an understanding of human development and the nature of learning. Prerequisite: Psychology 101 or 111. (Fall and spring; lecture section A—M 1:10-3 pm, section B—W 2:10-4 pm, section C—Th 6:10-8 pm, conference and field work—as arranged; summer 1964 (McIntyre, Long))

111 *Methods in Elementary Education* (12) McIntyre and Staff
For seniors in the elementary school curriculum. Methods, materials, appraisal, and field experiences in elementary schools. Problems and procedures in teaching the language arts (including reading, literature for children, oral and written expression, spelling, and handwriting), mathematics and science, social studies. Planning units of work, general classroom procedures, and evaluation of pupil progress. Observation and participation two meetings a week. Prerequisite: Education 108 and 123. (Fall—MTWTh 9:10-12 am.)

112 *Educational Measurement* (3) Westerlund, Williams
Some, needs, services to students, selection and construction of teacher-made tests, interpretation of tests for classroom purposes. Prerequisite: Education 108 and 111. (Fall and spring; section A—T 3:10-5 pm, section B—W 3:10-5 pm, section C—M 3:10-5 pm; summer 1964 (McCauley))

113 *Elementary School Art* (3) Nowlin
For undergraduates in the elementary school curriculum. Materials and methods. Prerequisite: Psychology 1 and 22, or 101. Measured fee, \$4.00. (Fall and spring; lecture and laboratory—M 6:10-9 pm, field work—as arranged; summer 1964 (Crump))

* 1964-1965 leave semester year 1964-65

- 114 *Elementary School Music* (3) Mitchell
For undergraduates in the elementary school curriculum. Materials and methods. Prerequisite: Psychology 1 and 22 or 121. (Fall and spring—Th 6:10-8 pm, field work (2 hours)—as arranged; summer 1964.)
- 115 *Teaching of Reading in the Elementary School** (3) Parker
A basic course in methods, techniques, materials, and activities essential to a good elementary school reading program. Prerequisite: Education 100 and 121 or teaching experience. (Spring—W 6:10-8 pm, field work (2 hours)—as arranged; summer 1964.)
- 116 *Elementary School Social Studies** (3) Trundle
For teachers. Content, methods, materials, and activities essential in the elementary school curriculum. Prerequisite: Education 100 and 121 or teaching experience. (Fall—W 6:10-8 pm; summer 1964.)
- 117 *Elementary School Science** (3) St. Cyr
For teachers. Content, methods, materials, and activities essential in the elementary school curriculum. Prerequisite: Education 100 and 121 or teaching experience. (Spring—T 6:10-9 pm, field work (2 hours)—as arranged; summer 1964.)
- 120 *Elementary School Arithmetic** (3) St. Cyr
For teachers. Content, methods, materials, and activities essential in the elementary school curriculum. Prerequisite: Education 100 and 121 or teaching experience. (Fall—T 6:10-8 pm, field work (2 hours)—as arranged; summer 1964.)
- 121 *Society and the School* (3) St. Cyr and Staff
Lecture (2 hours), conference (1 hour), field work (2 hours). For the general student as well as the prospective teacher. Historical and social development of education at local, national, and international levels; comparison of the school with other institutions serving functions of social personnel. (Fall and spring) Lecture sections: A—W 1:10-2 pm, section B—M 2:10-4 pm, section C—T 6:10-8 pm, conference and field work—as arranged; summer 1964.)
- 122 *Children's Literature** (3) Walker
For teachers. Examining and evaluating the newer books for children and the skill areas classes, understanding the contribution of literature to child development, analyzing children's original expression. Prerequisite: Psychology 1 and 22. (Spring—M 6:10-8 pm, field work (2 hours)—as arranged; summer 1964 (McIntyre).)
- 123 *Principles and Methods of Secondary School Teaching* Boswell, Myers, Stallings
(4)
For seniors in the secondary school curriculum. Course, unit, and lesson planning; lecture techniques used in presentation with motivation, the assignment, group projects, directed study, individual differences, evaluation, clerical functions, discipline, the classroom, activity opportunities, public relations. Prerequisite: Education 100 and 121. (Fall, section A—MW 8:40-9:10 am, section B—VTU 12:30-2 pm; spring—NW 1:30-6 pm. Field work—as arranged.)
- 124 *Student Teaching in Secondary Schools* (6 in 9) Boswell and Staff
For seniors in the secondary school curriculum. Sections A, B, and C are the fall, one semester, sections. Section D is for physical education majors (Myers, Stallings). Student teaching fee, \$50. Admission by permission of the instructor. Prerequisite: Education 100 and 121. (134A, fall—as arranged; 134A, 134B, 134C, and 134D, spring—as arranged.)
- 125 *Student Teaching in Elementary Schools* (9) McIntyre, Rashid
For seniors in the elementary school curriculum. Student teaching fee, \$50. Admission by permission of the instructor. Prerequisite: Education 100 and 121. (Fall and spring—as arranged.)

*The course may not be taken as credits when first completed or prior to course in Education 311.

SPECIAL METHODS COURSES*

To be elected in the senior year after substantial preparation in the teaching field conceptual by the students in the secondary school curriculum. Course requirements and hours of credit vary with license requirements. Practices of successful teachers are studied, and actual teaching content as found in current texts and courses of study is reviewed.

136. *Teaching English in Secondary Schools* (2 to 4) Williams
Prerequisite*: 16 semester hours in English. (Spring) lecture—M 6:10-8 pm, field work 16 hours—as arranged, summer 1964.)

137. *Teaching Speech* (2 to 4) Kosh
Prerequisite*: 16 semester hours in speech or the permission of the instructor. (Spring) lecture—T R 10-12 pm, field work (2 hours)—as arranged.)

138. *Teaching Social Studies in Secondary Schools* (2 to 4) Boswell
Prerequisite*: 24 semester hours of social studies. (Spring) lecture—Th 6:10-8 pm, field work (2 hours)—as arranged, summer 1964.)

139. *Teaching Art in Secondary Schools* (2 to 4) Fuller
Prerequisite*: 24 semester hours of Art. (Spring) lecture and laboratory—T R 8:10-9 pm.

140. *Teaching Mathematics in Secondary Schools* (2 to 4)
Prerequisite*: Mathematics through calculus. (Spring) lecture—Th 6:10-8 pm, field work 16 hours—as arranged.)

141. *Teaching Latin** (3) Gerber
Consideration of objectives in teaching Latin; construction of courses of study; techniques of motivation, presentation, and ability; areas of enrichment. Designed for both junior and senior high school teaching. (Summer 1964.)

142. *Teaching Music in Secondary Schools* (2 to 4)
Prerequisite*: 24 semester hours of Music. (Spring) lecture and laboratory to be arranged.)

144. *Teaching Science in Secondary Schools* (2 to 4) L'Pat
Prerequisite*: 24 to 40 semester hours of science. (Spring) lecture—T 6:10-8 pm, field work (2 hours)—as arranged.)

146. *Teaching Foreign Languages* (2 to 4) McSpadden
Prerequisite*: 20 semester hours of one foreign language. (Spring) lecture—T 8:10-9 pm, field work (2 hours)—as arranged.)

150. *Teaching Business Subjects* (2 to 4) Tinsie
Prerequisite*: 30 semester hours of business education. (Spring) 8:10-11 am.

151. *Introduction to the Education of Exceptional Children* (3) Ames
A survey course to introduce prospective teachers of the retarded with the various types and degrees of mental, physical, social, and emotional deviations from the school population and to help them to understand how such children in a normal program. Prerequisite: Education 100 and 123 or the equivalent test permission of the adviser. (Fall—W 8:10-9 pm.)

161. *Nature and Needs of Exceptional Children I—the Mentally Retarded* (3) Fournier
Nature and needs of children with varying degrees of mental retardation. Current methods and means of diagnosis and its psychological and sociological implications. Principles of learning and response in teaching retarded children. Discussion of facilities for the mentally retarded. Prerequisite: Education 100 and 123 or the equivalent and permission of the adviser. (Fall—M 4:10-6 pm.)

* Prerequisite to all special methods courses: Education 100, 123, and 151. Admission required after each special method course.

- 185 *Teaching Younger Mentally Retarded Children (Nursery and Elementary School Age)* (3) Cornish

Educational methods and curriculum for the mentally retarded at different levels of maturity within the scope of the course. Organization and planning of instructional material; selection and preparation of materials and equipment; community resources; records and reports; health and welfare services. Prerequisites: Education 180 and 181 or the equivalent and permission of the advisor. (Spring—M 4:10-6 pm.)

- 186 *Teaching Older Mentally Retarded Children (Junior and Senior High School Age)* (3) Botwin

Methods and curriculum for the mentally retarded at different levels of maturity within the scope of the course. Organization and planning of instructional materials; selection and preparation of materials and equipment; community resources; records and reports; health and welfare services; instructional techniques; employment preparation; and business, citizenship education. Prerequisites: Education 180 and 181 or the equivalent and permission of the advisor. (Spring—W 4:10-6 pm.)

- 187 *Practicum in Teaching the Mentally Retarded* (6 to 9) Botwin, Fouts, and Staff

Student teaching in classrooms for the mentally retarded under the direction of a qualified teacher and the supervision of the University staff. A minimum of 150 clock hours is required for 6 semester hours of credit; 225 for 9 hours. Prerequisites: Education 180 and 181. (Spring—see attached.)

THIRD GROUP*

- 201 *Seminar: Foundations of Education* (3) The Staff

Designed to reflect previous study and to give additional depth of knowledge in the historical, philosophical, sociological, psychological, sociological, measurement, and research foundations of education, and to study made for the Master's degree examination examination in these areas. (Fall—M 5:10-10 pm; spring—T 5:10-10 pm.)

- 202 *A Comparative Education* (3-5) Kourder

Comparison of foreign educational systems with those of the United States, particularly those of Russia, West Germany, Denmark, Switzerland, France, the British Isles, Canada, and Australia. (Autumn year—Th 5:10-10 pm.)

- 203 *The Curriculum* (3-4) St. Cyr

For experienced teachers. First half: curriculum foundations and issues; comparison of curriculum patterns. Second half: philosophy and procedures in curriculum development, group consideration of student problems. (Autumn year—Th 5:10-10 pm.)

- 204 *Curriculum Materials* (3) St. Cyr

For experienced teachers. Consideration of various of study, resource materials, classroom teaching aids, and management materials; direct application to students' own situations. (Summer 1964.)

- 205 *Human Development, Learning, and Teaching* (3) Long

Lecture (2 hours); conference (1 hour); field work (2 hours). For graduate students. Preparation of effective teaching based on an understanding of human growth and development and the nature of learning. Prerequisites: Psychology I and II, or 321. (Autumn fall and spring—M 5:10-8 pm; conference and field work—see attached.)

- 206 *Child Growth and Development* (3) Rashid

A developmental approach to child development in childhood. Special attention given to the physical, intellectual, and personal foundations for construction of language of child development. (Fall—W 6:10-8 pm.)

- 207 *Adolescent Growth and Development* (3) Rashid

A developmental approach to adolescent growth and development in adolescence. (Spring—see attached.)

* These four, as described, represent a minimum in all foreign courses.
1. The student should have a minimum of 100 hours of foreign study.

Particular attention is given to the analysis, interpretation, and practical implications for instruction of significant research in the various disciplines which have contributed most to the knowledge of the adolescent. (Spring—W 6:10-8 pm.)

212 Educational Measurement (3)

Basic measurement principles; construction, selection, administration, and interpretation of objective and essay-type examinations; statistical analysis of test results; laboratory experiences in the use of test instruments. (Fall—Th 8:10-10 pm)

Wilson

213-14 History of Education (3-3)

First half: the European backgrounds of American education. *Second half:* the evolution of the American school system. (Academic year—T 6:10-8 pm.)

215 Education of Exceptional Children* (3)

For classroom teachers. A survey of current problems in the education and guidance of exceptional pupils. Nature and needs of those physically, mentally, or emotionally handicapped; needs of the gifted. Resources for help in correction, diagnosis, therapy, education, and guidance. (Not offered 1964-65)

Amos

216 Education of Slow Learning Children* (3)

Identification, nature, and needs of slow learning elementary and junior high school children. Emphasis on diagnosis and treatment of learning difficulties. (Summer 1964)

Westerland

217-18 Philosophy of Education* (3-3)

First half: designed to help students formulate a personal philosophy of education. *Second half:* social foundations of education—a study of the forces that shape the policies and offerings of the school. (Academic year—W 8:10-10 pm; summer 1964—Education 210 (3))

Baker

219 Elementary School Classroom Procedures* (3)

Current classroom practices with particular emphasis on ways of planning and managing techniques in discipline; individual and group evaluation techniques; resources for learning; providing for individual differences. (Fall—F 5:10-7 pm.)

McIntyre

221 Early Childhood Education* (3)

The philosophy and principles underlying the teaching of four to seven-year-olds. Emphasis on the organization, equipment, methods, and materials for promoting the growth needs of young children. (Summer 1964)

Coleman

223-24 Reading Problems* (3-3)

For experienced teachers. Study of reading difficulties on elementary and secondary school levels; classroom and clinical approaches to solving reading problems. (Academic year—W 6:10-8 pm; summer 1964—Education 223 (3))

Redding

226 Reading in Secondary Schools (3)

For experienced teachers. Consideration of special problems in the content areas; diagnostic and corrective techniques and materials for the classroom teacher; reading improvement programs. (Spring—F 6:10-8 pm)

Baker

227 Basic Issues in Elementary Education (3)

A consideration of basic issues in the purposes, organization, and conduct of elementary education. Emphasis on the philosophical and psychological roots of fundamental assumptions as they relate to classroom practices. (Summer 1964)

Baker

228 Instructional Areas in Elementary Education (3)

Critical appraisal of the objectives, organization, content, and teaching methods in the language arts, mathematics, social studies, science, arts and crafts, health and physical education. (Spring—F 6:10-7 pm.)

Carroll

229 Administration of Elementary Education (3)

For experienced teachers and administrators. A consideration as a means of a basic instructional objectives, organizing learning and teaching activities, modeling, supervising

* prerequisite: adequate professional preparation

- and equipment, maintaining the building, and integrating school and community life. Emphasis upon prior lines to action. (Fall—Th 6:10-8 pm; summer 1964.)
- 231 *Secondary School Classroom Procedures** (3) Suber
Survey of current classroom practices with particular attention to selected topics such as teacher-pupil planning, group procedures, pupil mobility, initiatory and sustaining activities, individual and group evaluation techniques, teaching aids, etc.; review of recent literature. (Fall—Th 8:10-10 pm; summer 1964.)
- 232 *Audio-visual Education** (3) Kubalak
Lecture (2 hours), laboratory (1 hour). Role of audio-visual materials in learning; selection, evaluation, and use of materials; administrative problems in the care, operation, maintenance, and use of audio-visual materials and equipment. Material fee, \$7. (Spring—F 6:30-9:30 pm; summer 1964.)
- 241 *Education of the Gifted** (3) Amos
For classroom teachers. Nature and discovery of giftedness; provisions for the gifted in regular classes; experimental projects. (Spring—T 8:10-10 pm.)
- 242 *Human Relations in the Classroom** (3) Marinaccio
Principles and practices involved in interpersonal relationships between teacher and student and among students. (Summer 1964.)
- 243 *Tests and Measurements for Exceptional Children* (3) Batwin
Methods and methods of psychological, psychometric, and educational tests used in diagnosis and assessing achievement among exceptional children. Psychological Education 112 and 116 or equivalent, or permission of adviser. (Summer—1965.)
- 245 *School and Community** (3) Angel
The school as an important agency of a range of social agencies that builds the community. (Fall—Th 6:10-8 pm; spring—Th 8:10-10 pm; summer 1964.)
- 246 *Guidance and Counseling of the Mentally Retarded* (3) Batwin
Educational, mental, social, and vocational guidance of mentally retarded children. The role of the teacher in parent counseling. Community agencies involved in post-school rehabilitation, counseling, and vocational services for the mentally retarded. Psychological Education 112 and 116 or equivalent, or permission of adviser. (Summer—1965.)
- 247 *Vocational Education** (3) Walsh
Development in the United States; current concepts, agencies, practical problems, and trends. (Not offered 1964-65.)
- 249-50 *Practicum in Student Personnel Work** (1 to 3-1 to 3)
Supervised practical experience in student personnel services. Admission by permission of the instructor. (Academic year not attempted.)
- 251 *Guidance in Elementary and Secondary Schools** (3) Derwiler
A survey course; survey (study) curriculum of the program services to students, the instructional staff, and the administration; personnel needed for the program. (Fall—F 6:10-8 pm; spring—W 8:10-10 pm; summer 1964 (McDonald).)
- 252 *Organization and Administration of Guidance Services* (3) Suber
Designed for guidance directors and supervisors and experienced school counselors who are in search for study problems in the new field. Prerequisite: a minimum of 15 semester hours of approved graduate work in measurement and guidance. (Spring—F 6:10-8 pm; summer 1964 (Wollman).)
- 253 *Analysis of the Individual for Purposes of Counseling* (3) Derwiler
A directed study of individual analysis techniques with emphasis on handling such materials. Prerequisite: Education 112 or the equivalent. (Spring—M 6:10-8 pm; summer 1964.)

* Intermediate, adequate professional preparation.

254 *The Junior High School** (3)

Purposes, organization, core program, guidance, developing course of study, extracurricular activities. (Not offered 1964-65.)

Root

255-56 *Secondary Education** (3-3)

Five half-current proposals for the improvement of secondary education. Second half-current problems in each of the subject-matter fields. (Academic year—9:10-11 am, summer 1964 (Root, Iwamoto).)

Root

257 *Occupational and Educational Information* (3)

Designed to inform vocational and educational counselors with the basic occupational and educational information necessary in counseling. Sources of data and techniques of collecting, analyzing, and disseminating for purposes of guidance. (Fall—M 6:10-8 pm.)

Detwiler

(Fall—M

258 *Techniques of Counseling* (3)

An intensive study of the educational and psychological processes involved in counseling interviews. Specific types of vocational, educational, and personal counseling problems are discussed. Prerequisite: 12 semester hours in testing and guidance including Education 253 and 257. In exceptional cases Education 258 or 259 may be taken concurrently with 258. (Fall—W 8:10-10 pm, spring—T 8:10-10 pm, summer 1964.)

Detwiler

259-60 *Secondary School Management** (3-3)

For experienced teachers and administrators with two years of successful teaching in secondary schools. Management planning, execution, and control; nature of problem management; construction of the master schedule; basic system problems; current development of new policies and programs. (Academic year—8:10-10 am, 3 pm.)

Johnson

261-62 *Practicum in Guidance* (3-3)

Supervised practical instruction in school guidance. Prerequisite: graduate work in counseling. Admission by permission of the Chairman of the Department. (Academic year—8:10-10 am, 3 pm.)

Detwiler

(Academic

263-64 *Employee Training* (3-3)

First half: nature and purpose, review of major programs, orientation, supervisory aptitudes, clerical skills, communication. Second half: administrative problems and functions, training needs, coordination with other management functions. Prerequisite: graduate professional preparation or two years of experience in employee training. (Academic year—M 8:10-10 pm.)

Walsh, Root

265-66 *Teaching Secondary School English—Materials.**Resources, Content* (3-3)

A scholar course for teachers of English. Discussion of new approaches to course content. Offered in cooperation with the departments of English and Speech. First half: composition, writing, literature, composition, composition, and speech. Second half: American and English literature. (Not offered 1964-65.)

Williams

267-68 *Teaching Secondary School Social Studies—Materials.**Resources, Content* (3-3)

A scholar course for teachers of the social studies. Discussion of new approaches to course content. Offered in cooperation with the departments of History, Political Science, Geography and Regional Science, Economics, and Sociology and Anthropology. (Academic year—W 6:10-8 pm.)

Williams

269-70 *Business Management of Schools I-II** (3-3)

First half: Philosophy, organization, and functions of the business management plan in public education; institutional organization of business management; corporate structure and control; office staffs. Second half: planning and forecasting; business administration, management, and management procedures; organizational structure and functions; accounting and budgetary procedures; organizational structure and functions. (Academic year—T 8:10-10 pm.)

Cartell

* permission required for admission to all courses.

- 271 *The Teacher and School Administration** (3) Suber, Carroll
A survey course for teachers and prospective administrators. Education and world affairs, national government, role of the state, local administration, school finance, legal controls, school plant, public support, democratic administrative foundations, improving teaching conditions. (Fall—S 9:10-11 am; spring—W 6:10-8 pm; summer 1964.)
- 272 *The Teacher and School Supervision** (3) Carroll, Suber
Values, organization, human relationships, and techniques. (Fall—W 6:10-8 pm; spring—S 11:10 am-1 pm; summer 1964.)
- 273 *Teacher Education** (3-4) Edselt, Darland
First half: aims, objectives, and basic issues; study of outstanding and experimental programs. Second half: recruitment and selection, general education, teaching field preparation, professional sequence, laboratory experiences. (Academic year—M 8:10-10 pm.)
- 274 *School Finance** (3) Carroll
Educational financial theory, practice, and control, including methods of financing. (Not offered 1964-65.)
- 275 *Seminar: Public Relations in School Administration** (3) Carroll
Processes, gathering materials, disseminating messages, publicity media, public participation in policy making. (Spring Th 6:10-8 pm; summer 1964.)
- 276 *Administration of School Personnel** (3) Carroll
Techniques and problems of administration related to more effective service of staff personnel. (Not offered 1964-65.)
- 277 *School Law** (3) Reinhardt
Scope and scope of school law; legal rights and responsibilities of teachers, pupils, and taxpayers. Other legal problems of major interest to the group. (Summer 1964.)
- 278 *Adult Education** (3-3) Hadden
First half: current concepts and objectives, surveys of special programs on all levels—international through community. Second half: the adult as a learner, the teacher of adult learning; teaching techniques, administration of adult education programs. Academic year—W 8:10-10 pm; summer 1964—Education 280 (A) (Dorchester.)
- 279 *Seminar: the Educational Systems of the Soviet Union* (3) (Fall—T 9:10-10 pm.)
- 280 *Seminar: the Educational Systems of Communist China* (3) (Spring—W 8:10-10 pm.)
- 281 *Higher Education** (3-3) Rogers
First half: development, present status, and outlook for American colleges; purposes of higher education, current and projected programs, trends in curriculum, organization, and evaluation of outcomes. Second half: principles in development of new programs; study of curricula in liberal arts and professional fields, selection of institutional services and facilities to the institutional process. (Academic year—T 8:10-10 pm.)
- 282 *Extracurriculum Activities** (3) (Fall—T 9:10-10 pm.)
Values and purposes of selected activities—debatable, student assemblies, school public relations, student council, intercollegiate sports, participation activities in sponsoring, sponsoring, finance, and exhibition. (Not offered 1964-65.)
- 283 *Introduction to Student Personnel Work* (3) Kirkbride
A basic survey course of student personnel systems in American higher education. It should work as an integral part of the college program of instruction in counseling and in introduction being given to the literature of the field. (Fall—T 9:10-10 pm.)

287-88 Clinical Study of Reading Problems* (3-3)

For advanced students. Diagnostic and corrective work under supervision of the Reading Center. Each student is expected to measure and treat pupils who are retarded in reading. Case studies are presented and discussed. Prerequisite: Education 223-24 or the equivalent. Material fee, \$5 a semester. (Academic year—F 5:10-7 pm.) Coleman

289 Supervisory Problems in Reading* (3)

For experienced teachers, principals, supervisors, and superintendents. Problems in school in planning, organizing, and improving the total reading program, in promoting cooperative effort on the part of the staff toward increasing teaching efficiency. (Not offered 1964-65.) Coleman

291 Planning the School Plant (3)

Selection of sites; evaluation of existing buildings; utilization of present facilities; adjustment to expanding needs; heating, operation, and maintenance problems. (Spring—Th 8:10-10 pm.) Suber

293-94 Research (3-3)

Individual research under the guidance of a member of the staff. Program and content determined with an instructor. (Academic year—as arranged; summer 1964.) The Staff

295 Educational Research Methods and Procedures (3)

Required of all candidates for graduate degrees in Education. To be taken early in the master's graduate program. Prerequisite: an elementary course in statistics. (Fall: section A—Th 3:10-6 pm; section B—M 6:10-8 pm; spring: section A—Th 4:10-6 pm; section B—M 6:10-8 pm; summer 1964.) McCauley, Westerlund

296 Seminar in Educational Research (3)

Designed to help students prepare abstracts, responses to problems in education; evaluate the application of research techniques to special problems; define, organize, and present research strategy and prepare proposals for systematic research. Required of all candidates for the Doctor of Education degree and open, with permission, to candidates for other advanced degrees. Prerequisite: Education 295 or the equivalent. (Not offered 1964-65.) McCauley

298-300 Theses (3-3)

Required of all Master of Arts in Education candidates writing Master's theses. (Academic year—as arranged.) The Staff

SPECIAL COURSES OFFERED IN AFFILIATION WITH THE WASHINGTON SCHOOL OF PSYCHIATRY

The following Education courses offered by the Washington School of Psychiatry in affiliation with The George Washington University, are available to graduate students in the School of Education and to qualified students in the Division of University Studies. The Staff of the Washington School of Psychiatry will conduct these courses at the School of Psychiatry, 1610 New Hampshire Avenue, N.W., Washington, D. C.

234 Communication Skills for Teachers and Principals (4)

The life-space interview in the school setting between the teacher and the child in the principal and the child; the personal interview between the teacher and the parent or the principal and the parent. (Summer 1964.) Bernstein

235 Role of the Teacher in the Changing Community (3)

Racial, ethnic, and social class population shifts and accompanying problems of housing, health, and public safety, with emphasis on the human relations and mental health aspects of the current situation; supports, techniques, and resources available to educators. (Fall and spring semesters.) Kerckhoff

* Prerequisite: adequate professional preparation.

- 236 *Emotional Factors in Learning* (3) Hypps
For counselors and guidance staff, principals, special education teachers, pupil personnel workers. Problems of guidance derived from divergent or pathological motivational patterns in the child or family. Class limited to 25 students. (Fall and spring—evening.)
- 237 *Emotional Problems Confronting the Teacher* (3) Kehue
The teacher's relationships with other teachers, the administration, the school system, and pupil techniques of interviewing and dealing with parents, members of the school staff, and the community. (Fall and spring—evening.)
- 238 *Seminar on Learning Problems and Disabilities* (3)
Emotional learning blocks, socio-economic disadvantages, brain damage and hyperactivity, psychosomatic symptoms and health questions affecting learning, curriculum planning and its relation to mental health and learning growth, communication and motivation. (Spring—evening.)
- 239 *Educational Problems of the Urban Child* (2) Washinton
Mental health problems affecting the urban child's emotional, educational, and social needs; teacher-child relationship; language differences in various socio-economic environments. Curriculum planning. (Fall and spring—evening.)
- 240 *Techniques of Interviewing for Teachers and School Staff* (3) Long
An intensive study of specific interview techniques and response skills. Specific problems encountered by teachers and staff will be discussed. (Fall and spring—evening.)

Engineering and Applied Science

- Professors C. H. Waller, M. A. Mann, P. A. Graherty, Louis de Paepe, N. T. Giametta, H. F. Smith, Robert Heller, M. S. Ojalvo, G. M. Arkilo, H. D. Kuhn, George A. M. Rothrock.
- Associate Professors L. A. Gaildner, A. G. McNab, Gordon Sargent, Churchill Eisenhart, Theodore Young, F. K. Harris, D. P. Johnson.
- Professorial Lecturers Eric Glass, William Dufresne, Francis Washor, J. I. International, R. L. Wilson.
- Associate Professors John Egan, A. C. Marchbanks, R. B. Fox, R. E. Cooney, L. H. Giametta, R. I. Dandridge, E. C. Melton Jr.
- Professorial Lecturers Chester Peterson, Susan Schwartz, D. H. Cook, L. S. Brown, Milton Gussow.
- Associate Professors L. H. Brown, John Ellis, R. M. Moore, A. C. Melton, D. K. Arnold, B. I. Hyman, Theodore Forthofer.
- Lecturers George Abraham, P. H. Swartz, Harold Elmer, D. G. Babbie, T. B. Wiggin, Eric Jones, Jr., Victor Schmitt, W. W. Johnson, J. P. Frenzel, P. S. Shanon, C. A. Stone.
- Professors J. M. Raloff, Nicholas Eysenck, William Donald Rauscher, J. M. Cameron.

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APPLIED SCIENCE

UNDERGRADUATE

- 3 *Graphical Communication* (3)
Principles and methods of graphical communication, sketching, schematic diagrams, nomographs, charts and graphs, elements of descriptive geometry, spatial representation
- 4 *Logic and Method in Analysis* (3)
Logic, methods of investigation and reasoning, hypothesis, inference, probability. Analysis in the physical sciences and engineering.
- 5-6 *Finite Mathematics and Statistics in Science I-II* (3-3)
Statements, sets and functions, numbers systems, probability theory, linear algebra, convex sets, finite chains, basic statistical principles and methods, applications.
- 10 *General Field Theory* (3)
General theory of fields, Laplace and Maxwell equations, conformal mapping, particle motion in fields, potential.
- 11 *General Wave Theory* (3)
Basic wave mechanics; wave equations
- 12 *Electromagnetic Wave Theory* (3)
Electromagnetic waves in bounded media, radiation, resonators, guides, microwave.
- 20-20 *Control Network Theory I-II* (3-3)
Network theorems and functions, Laplace transform, Fourier integral, linear and nonlinear circuits, stability, scattering, families.
- 32 *Network Analysis* (3)
Solutions of equations using transformation calculus, poles and zeroes of network functions, correlation of domains, matrix representation, nonlinear circuit analysis
- 30 *Information Theory* (3)
Basic concepts of information, sources, processes, errors, coding, transmission, capacity, noise.
- 55 *Control Theory* (3)
Theory of automatic control systems, steady state and transient analysis, transfer functions, stability criteria.
- 58 *Analysis Methods* (3)
Methods for analyzing problems, use of fundamental principles of mathematics, numerical, and engineering in problem analysis.
- 59-60 *Introductory Analytical Mechanics I-II* (5-5)
Introduction to vector mechanics, statics and dynamics of particles, solids, and fluids; kinematics; treatment of statics and fluids and special problems; Newton's Laws; concepts of stress and strain with applications.
- 62 *Soil Mechanics* (3)
Soil mechanics theory, lateral pressure, seepage, failure, slope stability, bearing capacity, behavior under loading.
- 63-64 *Fluid Mechanics I-II* (3-3)
Characteristics and properties of fluids, basic laws of fluid motion, characteristics of flow, mathematical description of incompressible and compressible flows, concepts of potential, stream function, circulation, lift, drag; elements of boundary layer theory, turbulence, dimensional analysis; laboratory measurements and projects.
- 65-66 *System Dynamics I-II* (3-3)
Dynamics of linear systems, analogous, transient and steady state analysis, Lagrange's equations, Hamilton's principle, introduction to gyroscopes.

67. *Analytical Kinematics* (3)

Theoretical study of the motion of constrained and unconstrained rigid bodies.

68. *Deformable Body Mechanics* (3)

Introduction to two-dimensional theory of elasticity; torsion of prismatic bars; bending of thin plates; bending of columns, beam columns, frames, frames, frames; bending and torsion of prismatic members.

69. *Earth Science* (3)

Formation of and properties of soils and rock, climatology, hydrology, ground water and river flow, seismology.

70. *Digital Circuitry and Systems* (3)

Basic concepts of digital programmed systems, mathematical foundations and techniques for logical design, computer logic and circuitry.

80. *Introductory Astronomy* (3)

Cosmic systems and cosmology, description of astronomical systems, stars, stellar plasmas, elementary celestial mechanics.

85. *Thermodynamics* (3)

Theoretical study of fundamental concepts, first and second laws, equations of state, mixtures, phase mixtures.

8. *Energy Conversion* (3)

Energy forms and states, energy fields, concepts of efficiency, conversion methods, limitations.

90. *Heat Transfer Theory* (3)

Theoretical concepts of conduction, convection, radiation, field and potential theory applied to conduction.

91. *Intermediate Comprehensive Evaluation* (0)

Review of all elements at the completion of the Introductory Level and prior to admission to the Intermediate Level. No additional credit is given.

101. *2 Materials Science I-II* (4-4)

Structure and properties of materials, mechanical behavior of solids. The atom, bond, crystal structure, microstructure, phase, grain and microstructure, mechanical properties of solids, relation of structure to behavior, tests. Thermodynamics and kinetics of solid, electrical and magnetic properties. Thermodynamic analysis, reaction rates, diffusion, nucleation and growth, control of structure and properties, relation to microstructure. Corrosion, electrical and magnetic phenomena and their relation to structure, phase analysis, structure, microstructure.

101. *Fundamentals of Measurement Science I-II* (4-4)

Statistical measurements, error, accuracy, and precision, design of experiments.

107. *Statistical Metrology* (3)

Validation and statistical aspects of measurement, statistical methods, uncertainty, uncertainty, corrections, sampling.

10. *Measurement Analysis* (3)

Principles of statistical, conceptual and mathematical models, measurement, measurement, operations and analysis.

11. *Operations Research* (4)

Operations research and capitalization of operations research, role in decision making, methods and techniques.

112. *Quantitative Techniques* (3)

Quantitative study of mathematical, statistical, and quantitative techniques for measurement.

121-22 Structural Theory I-II (4-4)

Theory and analysis of behavior of structures, model analysis, numerical methods, matrix algebra methods, collapse methods.

130 Electrical Energy Conversion (3)

Generalized machine theory, thermionics, thermoelectricity, fuel cells, photovoltaic principles, introduction to electromechanical components, elements of magnetohydrodynamics.

193 Undergraduate Research (1 to 3)

Research problems approved by the faculty, with Dean's permission (credit is assigned in relation to work undertaken).

199 Advanced Comprehensive Evaluation (0)

Required of all students at the completion of the Intermediate Level and prior to admission to the Advanced Level. No academic credit; no fee.

GRADUATE**201 Automatic Control (3)**

Advanced theory of automatic control. Systems analysis, multiple loop systems, nonlinear systems.

211 Mathematical Methods in Applied Science I (3)

A course in such topics as functions of complex variables, infinite series, linear vector spaces and matrices, and partial differential equations.

212 Mathematical Methods in Applied Science II (3)

Mathematical topics include: introduction to tensor analysis, calculus of variations, finite differences, and integral equations.

216 Advanced Dynamics (3)

Dynamics of continuous mechanical systems; Lagrange's equations, Hamilton's principle, gyrodynamic; operational methods.

217 Analytical Mechanics (3)

Fundamental principles, generalized coordinates, variational principles and Lagrange's equations, nonholonomic systems, Hamilton's equations, theory of small oscillations.

218 Mechanics of Orbits and Trajectories (3)

Celestial mechanics. Orbits and trajectories in force fields. Dynamics of space vehicles.

219 Mechanics of Continua (3)

Mechanics of elastic, plastic, and viscous solids, and of fluids; introduction to theory and formulation of basic equations.

220 Nonlinear Mechanics (3)

Topological and analytical methods in nonlinear mechanics, nonlinear resonance, relaxation oscillations.

221 Theory of Elasticity I (3)

Introduction to mathematical theory of elasticity, analysis of strain and stress, generalized Hooke's law, equilibrium equations, Beltrami-Mitchell equations, strain energy functions, torsion, general flexure.

222 Theory of Elasticity II (3)

First and second boundary-value problems in plane elasticity, uniqueness of solutions, simply and multiply connected regions, three-dimensional problems, thermoelasticity, vibration of elastic solids, variational methods.

223 Celestial Mechanics (3)

General equations of motion, Lagrange's planetary equations, disturbing function, Delaunay and Poincaré variables, secular inequalities, lunar theory, precession and nutation.

227 *Experimental Stress Analysis* (3)

Applications of the theory of elasticity in the analysis of strain and stress; theory and problems in measurement of static and dynamic strains; measurement of force, acceleration, and velocity.

228 *Photoelasticity and Photoplasticity* (3)

Theory and problems in two- and three-dimensional photoelasticity; photoplasticity.

231-32 *Fluid Dynamics I-II* (3-3)

Physical principles of fluid motion; including conservation laws, characteristics and properties of fluids. Navier-Stokes equations and some solutions; Prandtl-Taylor hypotheses and boundary layer theory, laminar; compressible flow, including variable area, friction and heating effects, normal and oblique shock, sub-, trans-, and supersonic velocities.

233 *Problems in Applied Science* (3)

Investigation of problems in engineering and applied science, emphasizing imaginative and systematic application of fundamental principles in engineering, physics, and mathematics.

241 *Science of Materials* (3)

Relation of the atomic and micro-atomic structure of materials to their physical and mechanical properties and their mechanical behavior in applications.

242 *Magnetohydrodynamics* (3)

Study of the interaction of electromagnetic and fluid fields. Dynamics of conducting fluids in electric, static and magnetic fields.

250 *Theory of Plate Structures* (3)

Classical and modern methods of analysis of statically indeterminate structures, including matrix analysis, theory of plastic collapse.

251 *Nonlinear Theory of Structures* (3)

Causes of nonlinear structural behavior; analysis of beams, trusses, and rigid frames; deflection theory for arches and suspension bridges.

252 *Theory of Structural Dynamics* (3)

Analysis of elastic structures under various dynamic loadings, both steady state and transient, including vibrations of rigid frames, plates, and thin shells.

253 *Theory of Space Structures* (3)

Displacement and force methods of analysis of statically indeterminate structures; including matrix analysis, nonlinear and loading theories for thin shells.

260 *Theory of Plates and Shells* (3)

Classical and modern theories of plates and shells, plates and cylindrical shells under different loadings and boundary conditions, equations for plates including shear, torsionally symmetric shells under small deformations, and their applications.

261 *Theory of Plasticity* (3)

Introduction to mathematical theory of plasticity, tensor operations, theory of anisotropic materials, constitutive equations, characteristic surfaces for perfectly plastic solids; applications.

262 *Theory of Elastic Stability* (3)

Buckling problems and methods of analysis (including numerical methods); lateral buckling of beams; buckling of rigid frames, arches, plates, stiffened plates, and shells; elastic buckling.

263 *Field Analysis and Potential Theory* (3)

A general study of the theory of materials including those used to facilitate the solution of problems in electromagnetism theory, dielectric, thermodynamics and gravitation.

264 *Electrodynamics* (3)

Propagation of moving matter in electromagnetic fields, force and energy in moving systems, relativistic concepts, tensors.

265. *Electromagnetic Waves* (3)

Electromagnetic waves in bounded media; radiation from antennas; high frequency transmission lines; cavity resonators; and microwave devices.

266. *Electromagnetic Wave Propagation* (3)

Ground waves; space wave propagation; atmospheric effects; ionosphere; maximum usable frequency; bandwidth.

267-68. *Network Analysis and Synthesis I-II* (3-3)

Network theorems; passivity of networks; network functions; positive real functions; realizability conditions of network functions; synthesis of driving-point functions; synthesis of transfer functions; filter design; the approximation problem.

270. *General Network Analysis* (3)

Solutions of linear integro-differential equations using transformation calculus. Laplace transforms; Fourier integral; poles and zeroes of network functions; correlation of time and frequency domains; elements of network synthesis.

271. *Active Network Theory* (3)

Analysis of three-terminal networks; matrix representation; reciprocity; stability; passivity; feedback; oscillators. Unified theory for all linear three-terminal networks, including vacuum tube and transistor circuits.

274. *Analysis of Modulation and Noise* (3)

Analysis of Fourier series and integrals of signals and linear networks; modulation and spectral noise analysis including probability method of determining power spectra.

275. *Physical Electronics* (3)

Physical principles underlying operation of various electronic devices including vacuum tubes, electron beams, transistors, and recent solid-state electronic devices.

280. *Thermodynamics* (3)

Concepts of first and second laws; ideal and van der Waal gases; kinetic theory and thermodynamics; introduction to statistical thermodynamics and third law.

281. *Heat Transfer* (3)

Physical and mathematical concepts of heat transfer phenomena under steady and unsteady conditions; conduction; Stefan-Boltzmann and Planck laws for radiation; Fourier heat conduction for conduction; dimensional analysis; and boundary layer theory for convection.

282. *Gas Dynamics* (3)

Theory of gas dynamics including; equilibrium, shock phenomena, dynamics of flow and heat transfer for high temperature gases.

283. *Hypersonic Fluid Dynamics* (3)

Shock disturbance theory, Newtonian theory, constant density solutions, thin shock layers, viscous interactions, free molecule and transition gas flows.

284. *Combustion Processes* (3)

Thermodynamics of combustion; chemical kinetics; flame propagation; combustion of liquids and solids; detonation processes.

285. *Reaction Kinetics* (3)

Theoretical aspects of kinetics of homogeneous and heterogeneous reactions in gaseous and liquid systems.

286. *Information Theory* (3)

Discrete and continuous systems; entropy measures and random processes; coding; time, filtering, prediction, redundancy.

287. *Automata and Self-organizing Systems* (3)

Effectively computable functions and Turing machines; digital computational models in Boolean algebra; combinatorial models and their analysis; creation circuits and their analysis; reliability of automatic networks of automata; artificial intelligence.

- 298 Research (1 to 3)
Research as arranged.

299-300 Thesis (3-5)

ENGINEERING

UNDERGRADUATE

- 1 *Engineering Planning and Economics* (3)
Analysis, planning, and economics of engineering projects using mathematical and modern computational methods.
- 2 *Regional and Urban Planning* (3)
Engineering aspects of regional and urban planning, including transportation, water supply and sewerage, public safety and convenience, utilities, and natural resources.
- 3 *Hydraulic Engineering* (3)
Hydraulic system design; including pipe networks, river and channel flow; drainage and irrigation, water supply, and sewerage.
- 11-12 *Structural Design I-II* (3-3)
Elements of structural design; analysis and design of metal and reinforced concrete structures, plastic collapse and ultimate strength analysis.
- 11-14 *Structural Laboratory I-II* (3-3)
Theoretical and experimental treatment of structural problems.
- 15 *Structural Dynamics* (3)
Analysis and design of structures under vibration, earthquake, blast, and other dynamic loading; energy methods; applications of matrix algebra.
- 19-20 *Engineering Electronics I-II* (3-3)
Analysis and design of vacuum tube and solid state devices, voltage and power amplifiers, feedback amplifiers, oscillators, modulation, relaxation, and computing circuits.
- 21 *Introduction of Computers to Engineering Problems* (9)
Machine organization; number systems; principles of programming; machine language programming; programming languages: Fortran, Algol, Cobol; numerical analysis, basic logic circuits.
- 22 *Digital Techniques* (3)
Analysis and design of digital systems and digital logic circuits, memory systems, logic testing, and logic simulation, timing diagrams.
- 23-24 *Computer Laboratory I-II* (3-3)
Use of digital and analog computers; including design, logical circuitry, programming, simulation, and modeling.
- 25 *Applied Thermodynamics* (3)
Vapor cycles, combustion, gas dynamics, equilibrium, multicomponent mixtures.
- 31-32 *Thermal Power I-II* (3-3)
Analysis and design of operating components in heat power, gas and vapor turbine, internal combustion engines, heat pumps, and nuclear power systems, including aspects of engineering economy.
- 33 *Fluid Machinery* (3)
Theory and design of fluid machinery, including turbomachinery, turbine converters and compressors, and jet engines. Laboratory projects.
- 39-40 *Practical Electrical Measurements I-II* (3-3)
Practical measurements, from direct current through radio frequencies, techniques.

detectors; bridges; measurement of current, voltage, power, resistance, capacitance, inductance, energy, phase angle, frequency and time; electric and magnetic flux meters; topics in high-frequency measurement including field strength, signal-to-noise ratio, impedance, attenuation.

52 *Introductory Transducers and Instrumentation* (3)

Theory, design, and application of simple transducers; design of instrumentation of one-type systems; analysis and design of simple transducer instrumentation.

53 *Advanced Transducers and Instrumentation* (3)

Analysis and design of transducers and instrumentation for measurement in systems containing multiple quantities of one type or mixtures of types.

54 *Precise Mechanical Measurements* (4)

Techniques for precise measurement of mass, time, weight, density, force, pressure, vibration, acceleration, flow, and viscosity.

55 *Precise Heat Measurements* (4)

Temperature scales; measurement by resistance thermometry, thermocouples, pyrometry, vapor pressure, thermometry; heat transfer quantities and their measurement; calorimeters, flow calorimeters.

56 *Pressure Measurements* (3)

Experimental techniques for quantitative measurement of pressure; working gauges, standards, calibration procedures; methods and apparatus for observations near atmospheric pressure, in the high pressure range, and in the vacuum range.

101-2 *Communications Laboratory I-II* (3-3)

Analysis and design of solutions to problems in communications and information.

103-4 *Control Laboratory I-II* (3-3)

Analysis and design of electrical, mechanical, pneumatic, hydraulic, and combined control systems.

105-6 *Electrical Engineering Laboratory I-II* (3-3)

Design projects involving electrical and electromechanical devices and systems.

107-8 *Electronics Laboratory I-II* (3-3)

Design projects involving electronic devices and instrumentation.

109-10 *Energy Conversion Laboratory I-II* (3-3)

Analysis and design of solutions to problems in converting energy states and forms.

111-12 *Mechanical Engineering Laboratory I-II* (3-3)

Design projects involving mechanical, fluid thermal, thermomechanical, and electromechanical devices.

115 *Reactor Engineering* (3)

Reactor physics; types of reactors; moderators, control methods, pile design; reactor kinematics; design problems.

199 *Engineering Research* (1 to 3)

Undergraduate research projects as approved by the Faculty, with Dean's permission. (Credit is assigned in relation to the work undertaken.)

GRADUATE

201 *Metal Structures* (3)

Structural behavior and failure of metal structures, materials, residual stresses, analysis and design of connections and members, theory of plastic collapse of structures, plastic design.

202 *Ultimate Strength of Reinforced Concrete Structures* (3)

Modes of failure of reinforced concrete structures; experimental data on failure; ultimate strength concepts for the analysis of beams, slabs, and columns.

- 203 *Prestressed Concrete Structures* (3)
Structural behavior and failure of prestressed concrete structures; materials; theory, analysis, and design of prestressed concrete structures and members.
- 204 *Geotechnics in Soil Mechanics* (3)
Dynamic geology in the formation and properties of soils; Boussinesq and Westergaard equations for stresses and deformations in soil masses; methods of settlement; flow of water in soils; solutions of Laplace-type equations for seepage involving foundations, earth dams, and wells; theory of frost action.
- 205 *Theoretical Soil Mechanics* (3)
Theories of soil strength and conditions for failure, bearing capacity of footings, pile foundations, theories of lateral earth pressure, stability of slopes, soil dynamics.
- 206 *Foundation Engineering* (3)
Principles of soil mechanics and structural mechanics in the analysis and design of spread footings, mat and pile foundations, retaining walls, sheet piling and water front structures.
- 211 *Experimental Structural Analysis* (3)
Experimental analysis of truss, rigid frame, plate, and shell structures; large- and small-deflection models; similitude.
- 212 *Concepts of Structural Design* (3)
Advanced seminar relating theoretical and experimental knowledge to the problems of function, form, mechanical behavior, failure, and analysis of structures.
- 220 *High-Frequency Electronics* (3)
High frequency operation of electron tubes and semiconductor devices, transit time, bunching, pulse techniques.
- 221 *Industrial Electronics* (3)
Vacuum tubes and applications; rectifiers, timing circuits; induction and dielectric heating; regulation and control, magnetic amplifiers.
- 222 *Electronic Measurements in Medicine* (3)
Theory of measurements in biological areas, field and circuit theory as a foundation for measurements, techniques for electronic measurements on biological systems; problems in medicine and psychology with emphasis on measurements and measuring devices.
- 223 *Physical Basis for Medical Electronics* (3)
Electrical and acoustical properties of biological material; structural components of biological material as they affect its electrical and acoustical behavior; electrical anisotropy phenomena in period and their application to biological material in position in applications in diathermy and electrocardiography, impedance determination.
- 224 *Digital Techniques* (3)
Automatic programming techniques, self-testing and correcting codes, advanced logic and circuit design, electronic design of digital transmitter and magnetic circuits, memory systems, analog-to-digital techniques, wiring diagrams.
- 225 *Digital Circuitry and Systems* (3)
Basic concepts of modern digital programmed systems, mathematical foundations and techniques for logical design of digital circuits, electronic design of computer systems.
- 226 *Digital Systems* (3)
The programmed system; system design of digital computers, special purpose digital computers, reliability, data processing techniques, analog-digital and digital-analog techniques.
- 227 *Microelectronics* (3)
Transmission lines; waveguides, antennas, resonators, amplifiers and oscillators; klystrons, magnetrons, traveling wave tubes.

234 Antennas (3)

Maxwell's equations, radiation, impedance, directional characteristics, arrays, aperture antennas.

235 Communication Systems (3)

Radar, television; ultrahigh frequency systems; navigational aids.

240 Power Transmission (3)

Transmission lines, exact and approximate equivalent circuits, standing waves, filtering, protection, radio interference, high voltage, line constructions.

241 Power Generation (3)

Steam, hydroelectric, and nuclear plants; fuel cells; magnetohydrodynamics, oil engines, rocket engines, stability; fuel turbines, power plant swings.

242 Power Systems (3)

Substations, transformers, distribution networks, short and open circuit analysis, symmetrical components, stability, network analysis.

270 Advanced General Metrology (3)

Treats in the conceptual, physical, and mathematical aspects of measurement, standards, design for precision measurement, and measurement at extreme values.

271-72 Probability and Statistics of Metrology I-II (3-3)

Probability distributions, discrete and continuous distributions; sampling; confidence interval analysis; stochastic processes; conditional probability; correlation; analysis of variance; design and analysis of experiments, Latin Square experiments, factorial experiments, block and lattice design.

273 Microwave Measurements (3)

Measurement of power, frequency, impedance, wavelength, and attenuation at microwave frequencies. Characteristics and Q of resonant devices.

274 Precise Optical Measurements (3)

Optical constants of lens systems, aberration, resolving power; illumination in focal plane, image resolution, magnification, index of refraction; color and color temperature.

298 Research (1 to 3)

Research as arranged.

299-300 Thesis (3-3)**ENGINEERING ADMINISTRATION****GRADUATE****204 Administration of Engineering Contracts (3)**

Study of types of contracts, proposal preparation, evaluating contracts, negotiation, contract extension policies and procedures, appraisal of capabilities of contractors.

207 Personnel Administration (3)

Study of personnel functions with emphasis on relationships within organizations with stress the content of organization and institutions, compensation, health, safety, education and training, financial compensation, union relations, cultural benefits and services, human relations and personnel research practices in engineering and industry.

210 Engineering Law (3)

Legal principles and procedures of interest to engineers, the American Legal System, contracts and specifications, liability of professional engineers, patent law, agency relationships, negotiable instruments, patent and proprietary rights, special problems in research and developmental contracts.

211 Engineering Administration I (3)

Planning and scientific method in administration. Characteristics of plans; establishment of objectives and goals; forecasting future conditions; formulating policies, methods, and procedures; organizing for planning; testing of plans. Decision making, problem solving; factors in decision; problem formulation, model building, testing and solving, testing and control of situations.

212 Engineering Administration II (3)

The (1) organizing, (2) directing or leading, and (3) controlling elements of the administrative process. Characteristics of organization, communication, authority, responsibility, levels of specialization, coordination, delegation, staff, consultant, liaison, personnel management, executive leadership, communication, implications of motivational systems, systems for effective administration. Principles and methods for evaluation and control of operations.

213 Engineering Administration III (3)

(Sequential to EA 211 and EA 212)

Application of principles of administration and scientific method in solving case problems.

22 Management of Production Processes and Facilities (3)

Planning, organizing, and control of production; forecasting techniques; material management; methods of loading and scheduling production processes; electronic methods in production control. Organization and administration of the plant engineering function with emphasis on maintenance control programs.

23 Principles and Procedures of Automatic Data Processing Systems (3)

Logic of computers, arithmetic and control units, computers as systems analysis for data processing applications, system design, system economics, relation to scientific research.

24 Administration of Research and Development (3)

Contemporary practice of administration of scientific and engineering research and development for the purpose of finding information, organization, and management of research; selection of such findings to support managerial decisions and production of new technology in contemporary managerial, laboratory and organizational structures.

25 Economic Analysis in Engineering Planning (3)

Important concepts and theories essential to economic analysis of engineering projects. Application of tools and techniques used in various analytical processes. Decision making in pursuit of solutions to and assessment of, processes and current problems in this field.

26 Quantitative Techniques of Engineering Administration (3)

Analysis of the various quantitative techniques, mathematical, statistical, and other important scientific techniques in the context of engineering administration and the practice of administrative problems by the use of models, theories, and quantitative methods.

27 Operations Research (3)

Background and application of operations research; theory, characteristics, capabilities, limitations; considerations, methods and techniques, including construction of mathematical and mathematical models.

28 Problems in Operations Research (3)

Field exercises in operations research on a team basis. Each small group receives an actual problem and attempts to solve it by operations research methods. Class evaluation of progress.

29 Linear Programming (3)

Linear mathematical, statistical, and related problems with emphasis on the general linear programming problem; simplex computational procedure; duality; transportation and assignment problems; scheduling problems; network flow problems; integer programming and related developments.

276 Theory of Games (3)

Study of mathematical models with applications to the relationships among independent competitive entities (persons or organizations in environment of competition, bar gaming, bidding), selection of optimum strategies, mixed strategies, iterative solution, connections with linear programming and decision functions, two person and n person zero and nonzero sum games.

277 Queuing Theory (3)

Study and analysis of operational systems with variables in arrivals and service, Monte Carlo analysis, optimization methods.

285 Seminar in Administrative Problems (3)

Individual analysis of complex administrative problems, with group evaluation and discussion. Prerequisite: admission to candidacy and completion of at least 18 semester hours of graduate study.

298 Research in Engineering Administration (arr.)

Application of established techniques to new engineering administrative situations; the development of new knowledge of administration. Creative thinking in engineering administration, initiation of new theories and principles, development of new hypotheses, experimentation, proof of theories and hypotheses.

299-300 Thesis (3-3)

English

Professors E. S. Shepard, C. D. Linton, C. W. Cole, R. H. Moore, J. H. Cahoon, P. H. Hishbill, Jr., J. G. Allen, Jr., J. P. Roseng, Jr., (Chairman), R. H. Walker, Jr., Milton Crane

Associate Professors W. L. Turner, Mabel McClanahan, R. E. Caldwell, Elizabeth Wright, S. J. Brown, R. N. Gutz

Assistant Professors R. C. Rutledge, Louise Chittis, R. R. Coleman, J. A. Quidstad

Lecturer J. J. Monroe

Instructors L. E. Dahl, F. R. Turay, J. A. L. Lowry, R. F. Marlen, Jr., Andrea Di Piero

Associate Editor Allen, E. T. Sauerbrey, V. C. Troll, D. F. White

ENGLISH COMPOSITION¹

FIRST GROUP

A English for Foreign Students (3)

A course in reading and writing designed to assist the foreign student in overcoming deficiencies in the use of English. Special attention is given to spelling, syntax, grammar, idiom, and vocabulary. (Fall and spring—day and evening; summer 1964)

¹ The first of courses 1964-65.

² Before students are required to English 1, they are placed in the language groups of the first studies, grammar, standard usage and writing skills. Those students who show exceptional ability may, upon passing further tests, be exempted from one or both halves of the English Composition course. Those who are inadequately prepared are assigned to English 1X.

English 1 or 1X is prerequisite to all other courses in English. English 2 is the second half of the first-year composition course, requirement of students not exempted to follow the Continuous Course of Arts and Sciences programs.

- 11 *English for Foreign Students* (3) Wright and Staff
For second-semester foreign students not yet ready for English 1. Writing of expository paragraphs and themes; analyzing; reading for comprehension; vocabulary, and style. (Fall—evening; spring—day and evening; summer 1964.)
- 12 *English Composition** (3) Moore and Staff
Review of grammar, exercises in composition, readings. (Fall and spring—day and evening; summer 1964.)
- IX *English Composition** (3) Moore and Staff
An intensive course in English grammar and composition to which are assigned students whose placement tests show them inadequately prepared for the regular work of English 1. The course begins with detailed instruction, drill, and exercises in the basic structure of the English language and in the writing of paragraphs; it continues with the content of English 1. English IX meets five hours a week and carries 3 semester hours of credit. The total fee is \$145 (the tuition fee of \$125 plus an additional fee of \$25). (Fall and spring—day and evening; summer 1964.)
- 2 *English Composition** (3) Moore and Staff
For second-semester freshmen not following the Columbian College of Arts and Sciences sequence. Readings and practice in expository and argumentative techniques and in research procedure. Prerequisite: English 1 or IX. (Fall and spring—day and evening; summer 1964.)
- 3 *English Composition** (3) Moore and Staff
The second half of the six-hour English Composition course required of students in Columbian College. A course in critical analysis and practice in expository and argumentative techniques and in research procedure. Prerequisite: English 1 or IX and first semester of one of the introductory literature courses. (Fall and spring—day and evening; summer 1964.)
- 4 *The Writing of Reports* (3) Turner and Staff
Theory and practice in the writing of technical reports. Prerequisite: English 1 or IX, and 2 or 4. (Fall—evening.)

SECOND GROUP

- 101 *Expository Writing* (3) McCluskey
A study of types of expository writing with weekly exercises based on students' needs; particular attention may be given to problems in the writing of graduate theses. Prerequisite: English 1 or IX, and 2 or 4. (Fall—day.)
- 113 *Narrative Writing* (3) Gajdosik
Study of the techniques of narrative writing and class criticism of student writing. Prerequisite: English 1 or IX, and 2 or 4. (Fall—day and evening.)
- 114 *The Writing of Fiction—the Short Story* (3) Gajdosik
Prerequisite: English 113; consent of instructor. (Fall—evening.)
- 117-118 *The Writing of Fiction—the Novel* (3-3) Gajdosik
Writing a novel. Prerequisite: English 114; consent of instructor. (Academic year—evening.)
- 120 *The Writing of Poetry* (3) Gajdosik
Prerequisite: consent of the instructor. (Spring—evening.)

ENGLISH LITERATURE

FIRST GROUP

- 102 *Introduction to English Literature* (3-3) Highfill and Staff
Historical survey. Prerequisite: English 1 or IX. (Academic year—day and evening; summer 1964.)

91-92 *Introduction to European Literature** (3-3)

Consideration of various types. Prerequisite: English 1 or 1X.
day and evening; summer 1964—English 92 (3-3)

Shepard and Staff
(Academic year—)

SECOND GROUP*

121-22 *English Literature from the Beginnings to 1500* (3-3)

First half: English literature prior to Chaucer. Second half: Chaucer.
summer 1964. Second half, spring—day.)

Allee
(First half:)

125 *Introduction to English Linguistics* (3)

The development of the English language in a historical treatment of English gram-
mar. (Fall—evening.)

Allee

gram-

Clubb

129-30 *Elizabethan Non-dramatic Literature* (3-3)

Non-dramatic literature from 1485 to 1601. (Academic year—day.)

135-36 *Shakespeare* (3-3)

(Academic year—day.)

139-40 *The 17th Century* (3-3)

First half: poetry and prose from 1603 to 1660. Second half: Milton.
not offered 1964-65. Second half, spring—day.)

Linton
(First half:)

141-42 *English Literature, 1660-1790* (3-3)

Poetry and prose of the Neo-Classical period. (Academic year—day; summer 1964—
English 141 (3-3).)

Highhill

Reeing

151-52 *The Romantic Movement* (3-3)

Poetry and prose from 1780 to 1830. (Academic year—evening.)

Columbus

161-62 *Victorian Literature* (3-3)

Poetry and prose from 1830 to 1900. (Academic year—evening.)

Linton

165-66 *The 20th Century* (3-3)

British poetry, prose, and drama since 1900. (Academic year—day; summer 1964—
English 165 (3-3).)

summer 1964—

Clubb

181-82 *The English Novel* (3-3)

Major English novelists of the 18th and 19th centuries. (Academic year—day.)

Highhill

183-84 *The English Drama* (3-3)

First half: concerned primarily with the drama of Shakespeare's contemporaries. Sec-
ond half: a historical survey from 1660 to the present day. (First half: summer
1964. Second half: not offered 1964-65.)

Allee

191 *Medieval Legend and Saga* (1)

Coleridge and Norse. (Not offered 1964-65.)

Highhill, Reeing

199-200 *Prose and Poetry Readings for the English Literature*

Major (2-3)
Conferences and group discussions. (Academic year—day and evening.)

THIRD GROUP

221-24 *Old English* (3-3)

English language and literature before 1100. First half: Old English grammar and
syntax. Second half: Beowulf. (Academic year—evening.)

Allee

235-36 *Studies in Shakespeare and His Contemporaries* (3-3)

Prose and poetry, 1550-1650. (Academic year—evening; summer 1964—English
235 (3-3).)

* 91-92, 121-22, 125, 129-30, 135-36, 139-40, 141-42, 151-52, 161-62, 165-66, 181-82, 183-84, 191, 199-200, 221-24, 235-36, 241-42, 245-46, 249-50, 251-52, 255-56, 259-60, 261-62, 265-66, 269-70, 271-72, 275-76, 279-80, 281-82, 285-86, 289-90, 291-92, 295-96, 299-300, 301-302, 305-306, 309-310, 311-312, 315-316, 319-320, 321-322, 325-326, 329-330, 331-332, 335-336, 339-340, 341-342, 345-346, 349-350, 351-352, 355-356, 359-360, 361-362, 365-366, 369-370, 371-372, 375-376, 379-380, 381-382, 385-386, 389-390, 391-392, 395-396, 399-400, 401-402, 405-406, 409-410, 411-412, 415-416, 419-420, 421-422, 425-426, 429-430, 431-432, 435-436, 439-440, 441-442, 445-446, 449-450, 451-452, 455-456, 459-460, 461-462, 465-466, 469-470, 471-472, 475-476, 479-480, 481-482, 485-486, 489-490, 491-492, 495-496, 499-500, 501-502, 505-506, 509-510, 511-512, 515-516, 519-520, 521-522, 525-526, 529-530, 531-532, 535-536, 539-540, 541-542, 545-546, 549-550, 551-552, 555-556, 559-560, 561-562, 565-566, 569-570, 571-572, 575-576, 579-580, 581-582, 585-586, 589-590, 591-592, 595-596, 599-600, 601-602, 605-606, 609-610, 611-612, 615-616, 619-620, 621-622, 625-626, 629-630, 631-632, 635-636, 639-640, 641-642, 645-646, 649-650, 651-652, 655-656, 659-660, 661-662, 665-666, 669-670, 671-672, 675-676, 679-680, 681-682, 685-686, 689-690, 691-692, 695-696, 699-700, 701-702, 705-706, 709-710, 711-712, 715-716, 719-720, 721-722, 725-726, 729-730, 731-732, 735-736, 739-740, 741-742, 745-746, 749-750, 751-752, 755-756, 759-760, 761-762, 765-766, 769-770, 771-772, 775-776, 779-780, 781-782, 785-786, 789-790, 791-792, 795-796, 799-800, 801-802, 805-806, 809-810, 811-812, 815-816, 819-820, 821-822, 825-826, 829-830, 831-832, 835-836, 839-840, 841-842, 845-846, 849-850, 851-852, 855-856, 859-860, 861-862, 865-866, 869-870, 871-872, 875-876, 879-880, 881-882, 885-886, 889-890, 891-892, 895-896, 899-900, 901-902, 905-906, 909-910, 911-912, 915-916, 919-920, 921-922, 925-926, 929-930, 931-932, 935-936, 939-940, 941-942, 945-946, 949-950, 951-952, 955-956, 959-960, 961-962, 965-966, 969-970, 971-972, 975-976, 979-980, 981-982, 985-986, 989-990, 991-992, 995-996, 999-1000, 1001-1002, 1005-1006, 1009-1010, 1011-1012, 1015-1016, 1019-1020, 1021-1022, 1025-1026, 1029-1030, 1031-1032, 1035-1036, 1039-1040, 1041-1042, 1045-1046, 1049-1050, 1051-1052, 1055-1056, 1059-1060, 1061-1062, 1065-1066, 1069-1070, 1071-1072, 1075-1076, 1079-1080, 1081-1082, 1085-1086, 1089-1090, 1091-1092, 1095-1096, 1099-1100, 1101-1102, 1105-1106, 1109-1110, 1111-1112, 1115-1116, 1119-1120, 1121-1122, 1125-1126, 1129-1130, 1131-1132, 1135-1136, 1139-1140, 1141-1142, 1145-1146, 1149-1150, 1151-1152, 1155-1156, 1159-1160, 1161-1162, 1165-1166, 1169-1170, 1171-1172, 1175-1176, 1179-1180, 1181-1182, 1185-1186, 1189-1190, 1191-1192, 1195-1196, 1199-1200, 1201-1202, 1205-1206, 1209-1210, 1211-1212, 1215-1216, 1219-1220, 1221-1222, 1225-1226, 1229-1230, 1231-1232, 1235-1236, 1239-1240, 1241-1242, 1245-1246, 1249-1250, 1251-1252, 1255-1256, 1259-1260, 1261-1262, 1265-1266, 1269-1270, 1271-1272, 1275-1276, 1279-1280, 1281-1282, 1285-1286, 1289-1290, 1291-1292, 1295-1296, 1299-1300, 1301-1302, 1305-1306, 1309-1310, 1311-1312, 1315-1316, 1319-1320, 1321-1322, 1325-1326, 1329-1330, 1331-1332, 1335-1336, 1339-1340, 1341-1342, 1345-1346, 1349-1350, 1351-1352, 1355-1356, 1359-1360, 1361-1362, 1365-1366, 1369-1370, 1371-1372, 1375-1376, 1379-1380, 1381-1382, 1385-1386, 1389-1390, 1391-1392, 1395-1396, 1399-1400, 1401-1402, 1405-1406, 1409-1410, 1411-1412, 1415-1416, 1419-1420, 1421-1422, 1425-1426, 1429-1430, 1431-1432, 1435-1436, 1439-1440, 1441-1442, 1445-1446, 1449-1450, 1451-1452, 1455-1456, 1459-1460, 1461-1462, 1465-1466, 1469-1470, 1471-1472, 1475-1476, 1479-1480, 1481-1482, 1485-1486, 1489-1490, 1491-1492, 1495-1496, 1499-1500, 1501-1502, 1505-1506, 1509-1510, 1511-1512, 1515-1516, 1519-1520, 1521-1522, 1525-1526, 1529-1530, 1531-1532, 1535-1536, 1539-1540, 1541-1542, 1545-1546, 1549-1550, 1551-1552, 1555-1556, 1559-1560, 1561-1562, 1565-1566, 1569-1570, 1571-1572, 1575-1576, 1579-1580, 1581-1582, 1585-1586, 1589-1590, 1591-1592, 1595-1596, 1599-1600, 1601-1602, 1605-1606, 1609-1610, 1611-1612, 1615-1616, 1619-1620, 1621-1622, 1625-1626, 1629-1630, 1631-1632, 1635-1636, 1639-1640, 1641-1642, 1645-1646, 1649-1650, 1651-1652, 1655-1656, 1659-1660, 1661-1662, 1665-1666, 1669-1670, 1671-1672, 1675-1676, 1679-1680, 1681-1682, 1685-1686, 1689-1690, 1691-1692, 1695-1696, 1699-1700, 1701-1702, 1705-1706, 1709-1710, 1711-1712, 1715-1716, 1719-1720, 1721-1722, 1725-1726, 1729-1730, 1731-1732, 1735-1736, 1739-1740, 1741-1742, 1745-1746, 1749-1750, 1751-1752, 1755-1756, 1759-1760, 1761-1762, 1765-1766, 1769-1770, 1771-1772, 1775-1776, 1779-1780, 1781-1782, 1785-1786, 1789-1790, 1791-1792, 1795-1796, 1799-1800, 1801-1802, 1805-1806, 1809-1810, 1811-1812, 1815-1816, 1819-1820, 1821-1822, 1825-1826, 1829-1830, 1831-1832, 1835-1836, 1839-1840, 1841-1842, 1845-1846, 1849-1850, 1851-1852, 1855-1856, 1859-1860, 1861-1862, 1865-1866, 1869-1870, 1871-1872, 1875-1876, 1879-1880, 1881-1882, 1885-1886, 1889-1890, 1891-1892, 1895-1896, 1899-1900, 1901-1902, 1905-1906, 1909-1910, 1911-1912, 1915-1916, 1919-1920, 1921-1922, 1925-1926, 1929-1930, 1931-1932, 1935-1936, 1939-1940, 1941-1942, 1945-1946, 1949-1950, 1951-1952, 1955-1956, 1959-1960, 1961-1962, 1965-1966, 1969-1970, 1971-1972, 1975-1976, 1979-1980, 1981-1982, 1985-1986, 1989-1990, 1991-1992, 1995-1996, 1999-2000, 2001-2002, 2005-2006, 2009-2010, 2011-2012, 2015-2016, 2019-2020, 2021-2022, 2025-2026, 2029-2030, 2031-2032, 2035-2036, 2039-2040, 2041-2042, 2045-2046, 2049-2050, 2051-2052, 2055-2056, 2059-2060, 2061-2062, 2065-2066, 2069-2070, 2071-2072, 2075-2076, 2079-2080, 2081-2082, 2085-2086, 2089-2090, 2091-2092, 2095-2096, 2099-2100, 2101-2102, 2105-2106, 2109-2110, 2111-2112, 2115-2116, 2119-2120, 2121-2122, 2125-2126, 2129-2130, 2131-2132, 2135-2136, 2139-2140, 2141-2142, 2145-2146, 2149-2150, 2151-2152, 2155-2156, 2159-2160, 2161-2162, 2165-2166, 2169-2170, 2171-2172, 2175-2176, 2179-2180, 2181-2182, 2185-2186, 2189-2190, 2191-2192, 2195-2196, 2199-2200, 2201-2202, 2205-2206, 2209-2210, 2211-2212, 2215-2216, 2219-2220, 2221-2222, 2225-2226, 2229-2230, 2231-2232, 2235-2236, 2239-2240, 2241-2242, 2245-2246, 2249-2250, 2251-2252, 2255-2256, 2259-2260, 2261-2262, 2265-2266, 2269-2270, 2271-2272, 2275-2276, 2279-2280, 2281-2282, 2285-2286, 2289-2290, 2291-2292, 2295-2296, 2299-2300, 2301-2302, 2305-2306, 2309-2310, 2311-2312, 2315-2316, 2319-2320, 2321-2322, 2325-2326, 2329-2330, 2331-2332, 2335-2336, 2339-2340, 2341-2342, 2345-2346, 2349-2350, 2351-2352, 2355-2356, 2359-2360, 2361-2362, 2365-2366, 2369-2370, 2371-2372, 2375-2376, 2379-2380, 2381-2382, 2385-2386, 2389-2390, 2391-2392, 2395-2396, 2399-2400, 2401-2402, 2405-2406, 2409-2410, 2411-2412, 2415-2416, 2419-2420, 2421-2422, 2425-2426, 2429-2430, 2431-2432, 2435-2436, 2439-2440, 2441-2442, 2445-2446, 2449-2450, 2451-2452, 2455-2456, 2459-2460, 2461-2462, 2465-2466, 2469-2470, 2471-2472, 2475-2476, 2479-2480, 2481-2482, 2485-2486, 2489-2490, 2491-2492, 2495-2496, 2499-2500, 2501-2502, 2505-2506, 2509-2510, 2511-2512, 2515-2516, 2519-2520, 2521-2522, 2525-2526, 2529-2530, 2531-2532, 2535-2536, 2539-2540, 2541-2542, 2545-2546, 2549-2550, 2551-2552, 2555-2556, 2559-2560, 2561-2562, 2565-2566, 2569-2570, 2571-2572, 2575-2576, 2579-2580, 2581-2582, 2585-2586, 2589-2590, 2591-2592, 2595-2596, 2599-2600, 2601-2602, 2605-2606, 2609-2610, 2611-2612, 2615-2616, 2619-2620, 2621-2622, 2625-2626, 2629-2630, 2631-2632, 2635-2636, 2639-2640, 2641-2642, 2645-2646, 2649-2650, 2651-2652, 2655-2656, 2659-2660, 2661-2662, 2665-2666, 2669-2670, 2671-2672, 2675-2676, 2679-2680, 2681-2682, 2685-2686, 2689-2690, 2691-2692, 2695-2696, 2699-2700, 2701-2702, 2705-2706, 2709-2710, 2711-2712, 2715-2716, 2719-2720, 2721-2722, 2725-2726, 2729-2730, 2731-2732, 2735-2736, 2739-2740, 2741-2742, 2745-2746, 2749-2750, 2751-2752, 2755-2756, 2759-2760, 2761-2762, 2765-2766, 2769-2770, 2771-2772, 2775-2776, 2779-2780, 2781-2782, 2785-2786, 2789-2790, 2791-2792, 2795-2796, 2799-2800, 2801-2802, 2805-2806, 2809-2810, 2811-2812, 2815-2816, 2819-2820, 2821-2822, 2825-2826, 2829-2830, 2831-2832, 2835-2836, 2839-2840, 2841-2842, 2845-2846, 2849-2850, 2851-2852, 2855-2856, 2859-2860, 2861-2862, 2865-2866, 2869-2870, 2871-2872, 2875-2876, 2879-2880, 2881-2882, 2885-2886, 2889-2890, 2891-2892, 2895-2896, 2899-2900, 2901-2902, 2905-2906, 2909-2910, 2911-2912, 2915-2916, 2919-2920, 2921-2922, 2925-2926, 2929-2930, 2931-2932, 2935-2936, 2939-2940, 2941-2942, 2945-2946, 2949-2950, 2951-2952, 2955-2956, 2959-2960, 2961-2962, 2965-2966, 2969-2970, 2971-2972, 2975-2976, 2979-2980, 2981-2982, 2985-2986, 2989-2990, 2991-2992, 2995-2996, 2999-3000, 3001-3002, 3005-3006, 3009-3010, 3011-3012, 3015-3016, 3019-3020, 3021-3022, 3025-3026, 3029-3030, 3031-3032, 3035-3036, 3039-3040, 3041-3042, 3045-3046, 3049-3050, 3051-3052, 3055-3056, 3059-3060, 3061-3062, 3065-3066, 3069-3070, 3071-3072, 3075-3076, 3079-3080, 3081-3082, 3085-3086, 3089-3090, 3091-3092, 3095-3096, 3099-3100, 3101-3102, 3105-3106, 3109-3110, 3111-3112, 3115-3116, 3119-3120, 3121-3122, 3125-3126, 3129-3130, 3131-3132, 3135-3136, 3139-3140, 3141-3142, 3145-3146, 3149-3150, 3151-3152, 3155-3156, 3159-3160, 3161-3162, 3165-3166, 3169-3170, 3171-3172, 3175-3176, 3179-3180, 3181-3182, 3185-3186, 3189-3190, 3191-3192, 3195-3196, 3199-3200, 3201-3202, 3205-3206, 3209-3210, 3211-3212, 3215-3216, 3219-3220, 3221-3222, 3225-3226, 3229-3230, 3231-3232, 3235-3236, 3239-3240, 3241-3242, 3245-3246, 3249-3250, 3251-3252, 3255-3256, 3259-3260, 3261-3262, 3

- 239-40 *Studies in 17th Century Literature* (3-3) Reesing
Open to qualified undergraduates. *First half*: chief figures exclusive of Milton. *Second half*: Milton. (Not offered 1964-65.)
- 241-42 *Studies in Neoclassical Literature* (3-3) Highfill
Prerequisite: English 141-42. (Not offered 1964-65.)
- 251-52 *Studies in the Romantic Movement* (3-3) Reesing
Prerequisite: English 151-52. (Not offered 1964-65.)
- 261-62 *Studies in Victorian Literature* (3-3) Columbus
Prerequisite: English 161-62. (Not offered 1964-65.)
- 265-66 *Studies in 20th Century Literature* (3-3) Linton, Gaidusek
Eliot and his contemporaries. (Academic year-day; summer 1964-English 266 (3).)
- 273-74 *Research Methods and Bibliographical Materials* (3-3)
For description of course see American Literature 273-74, page 265.
- 283-84 *Studies in the History of the British Drama and Theater* (3-3) Highfill
Prerequisite: English 135-36, or 183-84, or 175-76, or the equivalent. (Academic year-day.)
- 295-96 *Studies in the History of English Literary Criticism* (3-3) Shepard
Open to undergraduates with the approval of the instructor. (Not offered 1964-65.)
- 299-300 *Thesis* (3-3) The Staff

AMERICAN LITERATURE

FIRST GROUP

- 71-72 *Introduction to American Literature** (3-3) Cole and Staff
A historical survey. *First half*: from the beginnings to the Civil War. *Second half*: from the Civil War to the present. Prerequisite: English 1 or 1X. (Academic year-day and evening; summer 1964.)

SECOND GROUP*

- 170 *The American Short Story* (3) Coberly
The historical development of the short story in America. (Summer 1964.)
- 171-72 *Studies in American Literature* (3-3) Lyon
Major factors in the national cultural tradition as shown by outstanding writers. Prerequisite: English 51-52 or 71-72. (Academic year-day and evening; summer 1964-English 171 (3).)
- 173-74 *Major American Poets* (3-3) Lyon
Advanced critical study of significant writers and movements. *First half*: from beginnings through 19th century. *Second half*: the 20th century. (Academic year-day; summer 1964.)
- 175-76 *American Drama* (3-3) Cole
Historical and critical study of significant plays and forms. *First half*: from beginnings through 19th century. *Second half*: the 20th century. (Academic year-day; summer 1964-English 176 (3).)

*English 11-12, 13-14, 15-16, 17-18, 19-20, 21-22, 23-24, 25-26, 27-28, 29-30, 31-32, 33-34, 35-36, 37-38, 39-40, 41-42, 43-44, 45-46, 47-48, 49-50, 51-52, 53-54, 55-56, 57-58, 59-60, 61-62, 63-64, 65-66, 67-68, 69-70, 71-72, 73-74, 75-76, 77-78, 79-80, 81-82, 83-84, 85-86, 87-88, 89-90, 91-92, 93-94, 95-96, 97-98, 99-100, 101-102, 103-104, 105-106, 107-108, 109-110, 111-112, 113-114, 115-116, 117-118, 119-120, 121-122, 123-124, 125-126, 127-128, 129-130, 131-132, 133-134, 135-136, 137-138, 139-140, 141-142, 143-144, 145-146, 147-148, 149-150, 151-152, 153-154, 155-156, 157-158, 159-160, 161-162, 163-164, 165-166, 167-168, 169-170, 171-172, 173-174, 175-176, 177-178, 179-180, 181-182, 183-184, 185-186, 187-188, 189-190, 191-192, 193-194, 195-196, 197-198, 199-200, 201-202, 203-204, 205-206, 207-208, 209-210, 211-212, 213-214, 215-216, 217-218, 219-220, 221-222, 223-224, 225-226, 227-228, 229-230, 231-232, 233-234, 235-236, 237-238, 239-240, 241-242, 243-244, 245-246, 247-248, 249-250, 251-252, 253-254, 255-256, 257-258, 259-260, 261-262, 263-264, 265-266, 267-268, 269-270, 271-272, 273-274, 275-276, 277-278, 279-280, 281-282, 283-284, 285-286, 287-288, 289-290, 291-292, 293-294, 295-296, 297-298, 299-300, 301-302, 303-304, 305-306, 307-308, 309-310, 311-312, 313-314, 315-316, 317-318, 319-320, 321-322, 323-324, 325-326, 327-328, 329-330, 331-332, 333-334, 335-336, 337-338, 339-340, 341-342, 343-344, 345-346, 347-348, 349-350, 351-352, 353-354, 355-356, 357-358, 359-360, 361-362, 363-364, 365-366, 367-368, 369-370, 371-372, 373-374, 375-376, 377-378, 379-380, 381-382, 383-384, 385-386, 387-388, 389-390, 391-392, 393-394, 395-396, 397-398, 399-400, 401-402, 403-404, 405-406, 407-408, 409-410, 411-412, 413-414, 415-416, 417-418, 419-420, 421-422, 423-424, 425-426, 427-428, 429-430, 431-432, 433-434, 435-436, 437-438, 439-440, 441-442, 443-444, 445-446, 447-448, 449-450, 451-452, 453-454, 455-456, 457-458, 459-460, 461-462, 463-464, 465-466, 467-468, 469-470, 471-472, 473-474, 475-476, 477-478, 479-480, 481-482, 483-484, 485-486, 487-488, 489-490, 491-492, 493-494, 495-496, 497-498, 499-500, 501-502, 503-504, 505-506, 507-508, 509-510, 511-512, 513-514, 515-516, 517-518, 519-520, 521-522, 523-524, 525-526, 527-528, 529-530, 531-532, 533-534, 535-536, 537-538, 539-540, 541-542, 543-544, 545-546, 547-548, 549-550, 551-552, 553-554, 555-556, 557-558, 559-560, 561-562, 563-564, 565-566, 567-568, 569-570, 571-572, 573-574, 575-576, 577-578, 579-580, 581-582, 583-584, 585-586, 587-588, 589-590, 591-592, 593-594, 595-596, 597-598, 599-600, 601-602, 603-604, 605-606, 607-608, 609-610, 611-612, 613-614, 615-616, 617-618, 619-620, 621-622, 623-624, 625-626, 627-628, 629-630, 631-632, 633-634, 635-636, 637-638, 639-640, 641-642, 643-644, 645-646, 647-648, 649-650, 651-652, 653-654, 655-656, 657-658, 659-660, 661-662, 663-664, 665-666, 667-668, 669-670, 671-672, 673-674, 675-676, 677-678, 679-680, 681-682, 683-684, 685-686, 687-688, 689-690, 691-692, 693-694, 695-696, 697-698, 699-700, 701-702, 703-704, 705-706, 707-708, 709-710, 711-712, 713-714, 715-716, 717-718, 719-720, 721-722, 723-724, 725-726, 727-728, 729-730, 731-732, 733-734, 735-736, 737-738, 739-740, 741-742, 743-744, 745-746, 747-748, 749-750, 751-752, 753-754, 755-756, 757-758, 759-760, 761-762, 763-764, 765-766, 767-768, 769-770, 771-772, 773-774, 775-776, 777-778, 779-780, 781-782, 783-784, 785-786, 787-788, 789-790, 791-792, 793-794, 795-796, 797-798, 799-800, 801-802, 803-804, 805-806, 807-808, 809-810, 811-812, 813-814, 815-816, 817-818, 819-820, 821-822, 823-824, 825-826, 827-828, 829-830, 831-832, 833-834, 835-836, 837-838, 839-840, 841-842, 843-844, 845-846, 847-848, 849-850, 851-852, 853-854, 855-856, 857-858, 859-860, 861-862, 863-864, 865-866, 867-868, 869-870, 871-872, 873-874, 875-876, 877-878, 879-880, 881-882, 883-884, 885-886, 887-888, 889-890, 891-892, 893-894, 895-896, 897-898, 899-900, 901-902, 903-904, 905-906, 907-908, 909-910, 911-912, 913-914, 915-916, 917-918, 919-920, 921-922, 923-924, 925-926, 927-928, 929-930, 931-932, 933-934, 935-936, 937-938, 939-940, 941-942, 943-944, 945-946, 947-948, 949-950, 951-952, 953-954, 955-956, 957-958, 959-960, 961-962, 963-964, 965-966, 967-968, 969-970, 971-972, 973-974, 975-976, 977-978, 979-980, 981-982, 983-984, 985-986, 987-988, 989-990, 991-992, 993-994, 995-996, 997-998, 999-1000.

177-78 *The American Novel* (3-3)

Historical and critical study of significant novels and short stories, beginnings through 19th century. *Second half*: the 20th century. (Academic year—evening.)

Coberly
First half: from
(Academic year

179-80 *Proseminar: Readings for American Thought and Civilization Majors* (3-3)

Continuous and group discussion. (Academic year—day and evening.)

Walker

THIRD GROUP

271-72 *Seminar in American Thought* (3-3)

Intensive consideration of specific periods and themes, primarily literary, in the history of American civilization. Prerequisite: English 171-72 or the equivalent. (Academic year—evening.)

Walker

273-74 *Research Methods and Bibliographical Materials* (3-3)

To acquaint graduate students with the principal sources of bibliography and with typical problems in research. (Not offered 1964-65.)

Coberly

277-78 *Studies in American Fiction* (3-3)

Prerequisite: English 177-78 or the equivalent. Open to the undergraduate with the approval of the instructor. (Not offered 1964-65; summer 1964—English 277 (3-3).)

Coberly

279-80 *Studies in American Poetry* (3-3)

(Academic year—day.)

Walker

281-82 *Reading Course in American Civilization* (3-3)

A consideration of the principal descriptive and interpretative works dealing with American civilization, with emphasis on the interdisciplinary understanding of this subject. Prerequisite: at least one upper division or graduate course in both American literature and American history. (Not offered 1964-65.)

Coberly

287-88 *Reading Course in American Fiction* (3-3)

Primarily for graduate students, designed to cover the literature and the critical materials for which the student will be responsible on comprehensive and final examinations. (Academic year—evening.)

The Staff

289-90 *Thesis* (3-3)

RELATED COURSES IN OTHER DEPARTMENTS

Classical Languages and Literatures 71-72, *Greek and Roman Backgrounds: Literature* (3-3)

Education 106, *Teaching English in Secondary Schools* (3)

History 131-32, *English History* (3-3)

Philosophy 111-12, *History of Philosophy* (3-3)

Speech B-C, *American Speech for Foreign Students* (3-3)

Speech 102, *Oral Interpretation of Literature* (3)

French

See "Romance Languages and Literatures".

Geography and Regional Science

Professors R. D. Campbell* (Chairman), H. W. Westermann, Samuel Van Valkenburg (Visiting)
 Professorial Lecturer Victor Petrov
 Associate Professor J. T. Davis
 Assistant Professor A. R. Gassaway

FIRST GROUP

- 51 *Introduction to Geography* (3) The Staff
 A study of place attributes and characteristics, patterns and associations of physical and cultural earth features. (Fall—day; spring—evening.)
- 52 *World Regions* (3) The Staff
 The analysis of world regional divisions, descriptions and interpretation of region concepts, evaluation of regional differences as they affect the distribution and activities of man. (Fall—evening, spring—day.)

SECOND GROUP

- 103-4 *Cartography* (3-3) The Staff
 A year course: credit is not given for the first half until the second half is completed. Principles of cartographic drafting: elementary map projections; map and graph planning; design and construction; uses and interpretation of maps. Prerequisite: Geography 51 and 52. Laboratory fee, \$11 a semester. (Academic year—Saturday morning.)
- 124 *Land Capabilities* (3)
 Evaluation of land capabilities based on analysis of locational, physical, economic, and social land characteristics. Principles of site analysis and best use. Systems of measurement of area potential. (1965-66 and alternate years.)
- 125 *Transportation Complexes* (3)
 A study of transportation networks and systems by which people, things, and ideas are given varying degrees of place utility. An analysis of the role of transportation in urban, national, and international relationships. (1965-66 and alternate years.)
- 126 *World Economics* (3) Gassaway
 Description and comparison of differing regional economic patterns: agricultural, industrial; patterns of world distribution. (1964-65 and alternate years. Fall—day.)
- 127 *World Population and Settlement* (3) Gassaway
 Population composition, structures, and distribution; characteristics world settlement

* On leave of absence academic year 1964-65.

241-42 Seminar: Place and Culture (3-3)

A study of the culture traits which characterize various ethnic groups and differentiate peoples-place associations. (1965-66 and alternate years.)

243 Seminar: Political Geography of Western Europe (3) Van Valkenburg

Discussions centering on the political entities of Western Europe: their structure and character, their interplay, their problems. (Summer 1964.)

244 Seminar: Western Europe in the North Atlantic Community (3) Alexander*

Western Europe's role in the North Atlantic Community, geographic backgrounds, factors for unity and diversity in Western Europe and in the community. (Summer 1964.)

245 Seminar: the Strategic Importance of Western Europe (3) Allen*

Analysis of the economic factors which underpin Western Europe's present and potential strategic importance, the military and political factors of her power position in the world setting. (Summer 1964.)

253-54 Seminar: Problems of Developing Nations (3-3)

Traditional societies and their disruption; modernization, social change, and economic development; problems of urban and regional planning; foreign aid programs. (1965-66 and alternate years.)

265 Seminar: Geography of the Soviet Union (3) Petrov

A detailed study of the area, including physical features, economic geography, natural and energy resources, and industries. A discussion of the latest Soviet patterns of the Soviet transportation system, of agriculture, and of multi-national population trends, with emphasis on population patterns along borderlands, especially the Sino-Soviet border. (Fall-evening.)

266 Seminar: Geography of China (3) Petrov

A study of the physical and economic geography of the country, including discussion of China's emerging industries, energy resources, transportation system. Special emphasis will be given to the population "explosion"—its distribution and significance. Emphasis also on regional geography, particularly on regions along the Sino-Soviet border, Manchuria, Tibet, Mongolia, Inner Mongolia, and Sinkiang. (Spring-evening.)

295-96 Research (3-3) The Staff

(Academic year—as arranged.)

299-300 Thesis (3-3) The Staff

COURSES OFFERED IN SPECIAL PROGRAM

In addition to the regular courses announced above, the University offers the following courses for students undertaking work toward the degree of Bachelor of Science in Cartography, which is administered by the College of General Studies. For information concerning the degree in Cartography, see the brochure on the subject.

GEOGRAPHY

51 Introduction to Geography (3)**52 World Regions (3)****115-16 Physical Geography (3-3)****124 Land Capabilities (3)****125 Transportation Complexes (3)**

* Appointment for summer 1964

CARTOGRAPHY

- 1 Map Interpretation (3)
- 11 Cartographic Drafting and Descriptive Geometry (3)
- 12 Topographic Surveying (3)
- 13 Higher Surveying (3)
- 17-18 Elementary Photogrammetry (3-3)
- 110 Map Projections (2)
- 111 Map Reproduction (1)
- 125 Elementary Geodesy (3)
- 126 Geodetic Astronomy (3)
- 190 Theory of Errors and Geodetic Adjustments (3)
- 191-92 Map and Chart Construction (3-3)

Geology

Professor Geza Teleki (Chairman)
 Professorial Lecturers C. L. Christ, Michael Fendley, H. T. Evans, Jr., L. G. Solon,
 V. L. Hutton
 Associate Professors G. V. Carroll, J. W. Evans, L. B. Flett
 Associate Professorial Lecturers Donald Aspinwall, P. M. Kist, J. T. Datto, Jr., E. G.
 Kaufman
 Associate Frederick Collier

FIRST GROUP

- 1-2 *Introductory Geology* (3-3)
 Lectures (12 hours), laboratory and field trip (12 hours). A survey course covering the
 principles of geology. Laboratory fee, \$6 a semester. (Autumn year—day; sum-
 mer, 1964)
 The Staff
- 12 *Rocks, Fossils, and Minerals* (3)
 Lectures (12 hours), laboratory (18 hours). Introduction to rocks, fossils, minerals, con-
 dition, and other mineral deposits. Prerequisite: Geology I and high school chemistry,
 or permission of the instructor. Laboratory fee, \$8. (Spring—day)
 Carroll
- 22 *Physiography* (3)
 Lectures (12 hours), laboratory (12 hours). Interpretive description of the features of
 the earth's surface; relief configurations of the world. Prerequisite: Geology I or per-
 mission of instructor. Laboratory fee, \$8. (Spring—day)
 Teleki

SECOND GROUP

- 101 *History of Geological Sciences* (2)
 Lectures on the development of geological thought and the history of geological and
 related sciences. (Fall—day)
 Teleki

- 103 Development of Scientific Thought (3)** Teleki
(Summer 1964.)
- 107 Dynamic Geology (3)** The Staff
Lecture (3 hours), recitation (1 hour). The interrelation of endogenic and exogenic forces in the processes of sedimentation and volcanism; geochemical and geophysical aspects of epicontinental and geosynclinal areas. Prerequisite: Geology 1; Physics 1-2 (or former 11 and 12); or permission of the instructor. (Fall—day.)
- 111-12 Mineralogy (3-3)** Carroll
A year course; credit is not given for the first half until the second half has been completed (except for chemistry majors who may receive credit for the first half only). Lecture (12 hours), laboratory (13 hours). First half, morphological crystallography and elementary aspects of optical crystallography with their application to the identification of minerals. Second half, optical mineralogy, identification of minerals by use of the polarizing microscope. Prerequisite: Geology 1 and 12; Physics 1-2 (or former 11 and 12), or permission of the instructor. Laboratory fee, \$10 a semester. (A one-year—day.)
- 115 Petrography (4)** Carroll
Lecture (2 hours), laboratory (4 hours). Mesoscopic and microscopic identification and classification of common rocks. Prerequisite: Chemistry 11-12; Geology 11-12. Laboratory fee, \$10. (Fall—day.)
- 116 Sedimentary Petrography (4)** Pierce, Carroll
Lecture (2 hours), laboratory (4 hours). The mineralogy and chemistry of sedimentary rocks. Identification, description, and classification of sedimentary rocks with mesoscopic and microscopic methods. Prerequisite: Chemistry 11-12; Geology 111-12. Laboratory fee, \$10. (Spring—day.)
- 117 Introduction to Petrology (3)** Carroll
Lecture (2 hours), laboratory (3 hours). Lectures on petrogenetic theory with emphasis on igneous and metamorphic rocks; laboratory work on the diagnosis of rock groups by polarizing microscopic determination of mineralogical and textural characteristics. Prerequisite: Geology 115. Laboratory fee, \$10. (1965-66 and alternate years.)
- 122 Structural Geology (3)** The Staff
Lecture (2 hours), laboratory and field trips as arranged. Genetic interpretation of geologic formations on the basis of their structures, with emphasis on applications to geological field work. Prerequisite: Geology 1-2 or 1 and 12. (Spring—day.)
- 123 Tectonics (3)** The Staff
Lecture (1 hour), laboratory (4 hours). Introduction to specialized techniques of structural analysis, and to tectonic theory. Prerequisite: Geology 122. Recommended: Applied Science 3. (Fall—evening.)
- 125 Marine Geology (3)** Pierce
Lecture and map work. Principles of oceanography and submarine geology; geology of the deep sea; topography, crustal structure, sedimentary processes, and marine environment. Prerequisite for geology majors: Geology 1-2 or 1 and 12; for students in fields other than geology, permission of the instructor. (Fall—day.)
- 128 Geomorphology (4)** Teleki
Lecture (2 hours), laboratory (2 hours), field trips as arranged. Nature and evolution of earth forms, interpretation of maps and aerial photographs. Prerequisite: Geology 22 and 107. (Spring—day.)
- 130 Photointerpretation (4)** Pierce, Teleki
Lecture (2 hours), laboratory (3 hours). Principles of photogrammetry, interpretation of geographical and geological features on aerial photographs, evaluation of data with stereoscopic methods. Laboratory fee, \$10. (1965-66 and alternate years.)
- 151-52 Invertebrate Paleontology (3-3)** Kauffman
Lecture (2 hours), laboratory (3 hours), field trips as arranged. Classification and

- evolution of fossil invertebrates, paleoecology of invertebrate organisms. Prerequisite: Geology 1-2 or 1 and 12. Laboratory fee, \$8 a semester. (Academic year—evening.)
- 154 *Vertebrate Paleontology* (3) Hotton
Lecture (2 hours), laboratory or field as arranged. General features of vertebrate morphology and evolution as illustrated by the fossil record; problems of paleoecology and adaptation, where appropriate. (Spring—evening.)
- 157 *Methods in Paleontology* (3) Sohn
An introduction to the principles and techniques of paleontological research, including the rules of zoological nomenclature. Prerequisite: Geology 131-32. (1965-66 and alternate years.)
- 163 *Sedimentation* (4) Pierce
Lecture (2 hours), laboratory (4 hours). Principles of sedimentation, analysis and interpretation of sedimentary processes and environment, laboratory experiments in the properties of sedimentary particles. Prerequisite: Geology 12 and 107. Laboratory fee, \$10. (Fall—evening.)
- 166 *Stratigraphy* (4) Pierce
Lecture (2 hours), laboratory (4 hours). Sedimentation, facies, evaluation of stratigraphic horizons, principles of correlation, applied stratigraphic geology. Prerequisite: Geology 107, 115, 122, 163. (1965-66 and alternate years.)
- 173 *Regional Geology* (3) The Staff
Lecture (2 hours), fieldwork (1 hour). Lecture and map work on the regional distribution of geological formations and structures. This course may be selected for credit. Prerequisite: Geology 107, 122, or permission of the instructor. (Fall—day.)
- 181 *Oceanography I* (3) The Staff
General and physical properties of sea water, movements of water masses, meteorological interpretation, ecology of marine plants and animals. Prerequisite: Chemistry 11-12, Geology 125, Physics 14 and 15. (Fall—day.)
- 182 *Oceanography II* (3) The Staff
Boundary processes and interactions between sea water and the atmosphere, principles of dynamics and their application to motion and distribution of variables, assessment of water masses, review of recent literature and problems. Prerequisite: Geology 181, (Spring—day.)
- 191 *Laboratory Techniques I* (2) The Staff
Lecture (1 hour), laboratory (2 hours). An introduction to photographic procedures and techniques for petrological and petrographic work. Laboratory fee, \$15. This course may be repeated for credit with the approval of the Department. (Fall—Saturday morning.)
- 192 *Laboratory Techniques II* (2) Collier
Lecture (1 hour), laboratory (3 hours). An introduction to laboratory machinery and techniques, preparation of thin sections, grinding and polishing techniques, final preparation, organization and handling of collections. Laboratory fee, \$15. This course may be repeated for credit, with the approval of the Department. (Spring—Saturday morning.)

THIRD GROUP

- 202 *Geometrics* (3) Pierce
Lecture (2 hours), laboratory (as arranged). Application of statistics to geological and petrological problems, quantitative and mathematical approach. Prerequisite: Mathematics 26 or permission of the instructor. Laboratory fee, \$10. (Spring—evening.)
- 25-6 *Seminar in Geology* (3-3) The Staff
Special topics. Does not repeat itself and may be elected in successive years. (Academic year—as arranged.)

- 211 *X-ray Crystallography* (3) Christ
The structure of crystals as determined by the X-ray method. (Fall—evening.)
- 212 *Crystal Chemistry** (3) Evans
Chemistry of the solid state. Bonding and coordination and the role of crystalline structure in chemistry and mineralogy. (Spring—evening.)
- 224 *Coastal Morphology* (3) Teleki
Lecture (2 hours), laboratory (2 hours). Morphological analysis of the features and processes of coastal zones. Survey of the coastal zone types of the world. Prerequisite: Geology 128. (Spring—day.)
- 241 *Geochemistry** (3) Fleischer
Principles and theories on the distribution, relationships, and the distribution in the various rock and mineral species. (Spring and alternate years.)
- 242 *Experimental Geochemistry* (3) The Staff
Recent advances in geochemistry, instrumental methods and their application. Special topics. Does not repeat itself and can be relected for credit. Prerequisite: Chemistry 111, 112; Geology 241. (1965-66 and alternate years.)
- 244 *Isotope Geology** (3) The Staff
Investigation of geological phenomena by means of stable and unstable isotopes of elements and of changes in their abundance. (1966-66 and alternate years.)
- 246 *Marine Geochemistry* (3) The Staff
Lecture (2 hours), laboratory (as arranged). Chemical composition and physical properties of sea water, chemical composition of marine sediments and their alterations, thermodynamics of sea water, chemical activity in the oceans, methods of analysis and problems of measuring. Prerequisite: Geology 241. Laboratory fee, \$18 (Spring—evening.)
- 249-50 *Seminar in Geochemistry* (2-2) The Staff
Independent topics each semester. Can be elected for either semester. Does not repeat itself and can be relected for credit. (Academic year—as arranged.)
- 251-52 *Micropaleontology* (4-4) Sahn
Lecture (2 hours), laboratory as arranged. Identification with the binocular microscope of Ostracoda and other fossil microorganisms. Micropaleontological techniques, paleontological research methods, taxonomy, and paleoecology. Age determination and correlation of stratigraphic units. Laboratory fee, \$12 a semester. (Academic year—evening.)
- 257-58 *Seminar in Paleontology and Paleogeology* (3-3) The Staff
Independent topics each semester. Can be elected for either semester. Does not repeat itself and can be relected for credit. (Academic year—as arranged.)
- 267-68 *Seminar in Stratigraphy* (3-3) The Staff
Independent topics each semester. Can be elected for either semester. Does not repeat itself and can be relected for credit. (Academic year—as arranged.)
- 295-96 *Research* (4-4) The Staff
Research on problems approved by the Staff. Open to qualified students with advanced training. Laboratory fee, \$6 a semester hour. (Academic year—as arranged.)
- 299-00 *Thesis* (3-3) The Staff
(Academic year—as arranged.)

* Prerequisite: an adequate background in physics and chemistry, to be determined in conference with the instructor.

Germanic Languages and Literatures

Professor W. K. Lerner (Chairman)

Associate Professors J. C. King, Klaus Thomaelt, H. D. Osterle

Instructor Carl Schner

Associate Anne Cordero

FIRST GROUP

1-2 First-year German (3-3)

The Staff

A year course; credit is not given for the first half until the second half is completed. The essentials of German grammar; translation of class prose. Three classroom periods a week plus one period of aural-oral practice in electronic language workshop. Workshop fee, \$6 a semester. (First half: fall—day and evening; spring—day; summer 1964. Second half: fall—day; spring—day and evening; summer 1964.)

3-4 Second-year German (3-3)

The Staff

A year course; credit is not given for the first half until the second half is completed. Selections from modern German prose; continuation and review of grammar. Three classroom periods a week plus one period of aural-oral practice in electronic language workshop. Workshop fee, \$6 a semester. Prerequisite: German 1-2 or two years of high school German. (First half: fall—day and evening; spring—day; summer 1964. Second half: fall—day; spring—day and evening; summer 1964.)

5-6 Intensive First-year German (5-5)

The Staff

A year course; credit is not given for the first half until the second half is completed. This course covers the same material as German 1-2, with greater depth because of additional attention to conversation, comprehension, reading, and writing. Five classroom periods a week plus one period of aural-oral practice in electronic language workshop. Workshop fee, \$6 a semester. (Academic year—day.)

7-8 Intensive Second-year German (5-5)

The Staff

A year course; credit is not given for the first half until the second half is completed. This course covers the same material as German 3-4, with greater depth because of additional attention to conversation, comprehension, reading, and writing. Five classroom periods a week plus one period of aural-oral practice in electronic language workshop. Workshop fee, \$6 a semester. (Offered 1965-66.)

9 German Conversation and Comprehension (3-3)

Osterle

Aural training, oral practice in electronic language workshop. Workshop fee, \$6 a semester. (Academic year—day.)

10 Beginning German for Reading Examination Candidates (0)

The Staff

Specially for graduate students with little or no German, who are preparing for reading examinations. No academic credit. Tuition fee, \$120. (Fall and spring—evening, summer 1964.)

German Readings for Nonmajor Students (3)

The Staff

Primarily for graduate students preparing for reading examinations. Undergraduates admitted with permission of the instructor. No academic credit for graduate students. Prerequisite: German 4 or 47, or the equivalent. (Fall and spring—evening, summer 1964.)

51-52 *Introduction to German Literature* (3-3)

Prerequisite: German 4 or the equivalent. (Academic year—evening; summer 1964.)

Osterle

SECOND GROUP

103-4 *Goethe's "Faust"—Parts I and II* (3-3)

(1964-65 and alternate years: academic year—day.)

Legner

131-32 *German Literature of the 18th Century* (3-3)

The age of Lessing, Goethe, and Schiller. (1965-66 and alternate years.)

Thoenelt

141-42 *German Literature of the 19th Century* (3-3)

Romanticism, Biedermeier period, Young Germany, Realism. (1965-66 and alternate years.)

King

151-52 *German Literature of the 20th Century* (3-3)

(1964-65 and alternate years: academic year—evening.)

Osterle

179-80 *Advanced Composition for Undergraduate and Graduate Majors* (1-1)

(Academic year—as arranged.)

King, Legner

THIRD GROUP

201-2 *Middle High German* (3-3)

(1965-66 and alternate years.)

Legner

205-6 *Gothic* (3-3)

Introduction to the comparative study of Germanic languages. (1964-65 and alternate years: academic year—day.)

Legner

209-10 *Old High German* (3-3)

(1964-65 and alternate years: academic year—day.)

King

213-14 *Old Norse* (3-3)

(1965-66 and alternate years.)

Allee

219 *Teaching German in College* (3)

Methodology, observation, and apprenticeship in college classes and the language work shop. (Fall—as arranged.)

The Staff

223-24 *Linguistic Analysis of Modern German* (3-3)

Treatment of phonetics, phonemics, morphology, and syntax. (1966-67 and every third year.)

King

225-26 *Seminar: Linguistics* (3-3)

Bibliography, methodology, readings, and research problems. (1965-66 and every third year.)

King, Allee

227-28 *Sanskrit—Introduction to Indo-European Linguistics* (3-3)

Old Indic language and literature. (1964-65 and alternate years: academic year—day.)

King

229 *German Literature of the 15th and 16th Centuries* (3)

Transition from chivalric to bourgeois literature. The eras of Humanism and the Reformation as reflected in the principal literary works. (1965-66 and alternate years.)

Legner

230 *German Literature of the 17th Century* (3)

Imitation of foreign models. The literary societies. Preciosity. Realism in the novel. Pietism. (1965-66 and alternate years.)

Legner

231-32 *German Classicism* (3-3)

An advanced study and critique of the literature of the Goethezeit. (1965-66 and alternate years.)

Thoenelt

Prerequisite: Ger-

- man 131-32 or the equivalent. (1964-65 and alternate years: academic year—evening.)
- 241-42 *Seminar: German Romanticism* (3-3) Thoenelt
Treatment of individual writers, groups, motifs, and tendencies. (1964-65 and alternate years: academic year—evening.)
- 251-52 *Seminar: Studies in 20th Century German Literature* (3-3) Osterle
Special projects in fiction, drama, poetry, and criticism. (1965-66 and alternate years.)
- 261-62 *German-English and German-American Literary Relations* Osterle
(3-3)
Influence of individual writers, with emphasis on Shakespeare and Goethe. Comparative studies of major genres. Sociology of literature. (1964-65 and alternate years: academic year—evening.)
- 263-64 *Evolution of the French and the German Novel from the 17th to the 20th Century* (3-3) Thoenelt
Influences, analogies, and contrasts. Motif and style studies. (1965-66 and alternate years.)
- 271-72 *Seminar: German Literature* (3-3) The Staff
Bibliography, methodology, readings, and research problems. (1965-66 and alternate years.)
- 299-300 *Thesis* (3-3) The Staff
Required of all candidates for the Master's degree in German. (Academic year—as arranged.)

Government and Business

- Professors R. D. Kennedy (*Emeritus*), J. L. Jessup, J. C. Dockravy (*Chairman*), D. S. Brown*, F. H. Gibbs, G. C. Jacobs, R. B. Eastin, R. F. Eriksen, G. L. Lippitt, Edwin Lewis, T. H. Carroll, Waldo Sommers, K. S. Stromsem, Leon Ginzburg
- Professorial Lecturers S. N. Alexander, C. G. Berns, J. L. Buckler, C. W. Clewlow, L. C. Collins, Frank H. Grinbotham, C. E. Houston, Robert Kaye, J. L. Krieger, K. F. McClure, Edward McCrensky, J. P. Murphy, M. E. Onda, J. M. Parrish, F. I. Shaffner, Clark Simpson, J. E. Smith, J. N. Smith, Jr., Clark Tidbits, W. G. Torrey, C. E. Goode, M. H. Schwartz, Tom Komos, C. U. Letourneau, Ben Posner
- Associate Professors F. C. Kurtz*, D. R. Cloutier, J. G. Brown, E. W. Camp, J. W. Coughlan, C. M. Mickey (*Research*), J. H. Walters, Jr., J. F. McCarthy, Jr.
- Associate Professorial Lecturers C. M. Campbell, O. C. Dister, J. F. Doubleday, Samuel Humes, George Idelson, V. B. Lewis, J. A. Morrow, Ross Pollock, John Provina, P. C. Tosini, W. W. Brownholtz, E. E. Pontus, Norman Beckman, Jerome Bracken
- Assistant Professors H. R. Page, R. F. Griffiths, G. F. Conner, M. G. Gallagher, D. M. Cook, P. D. Grub, Rosemary Capusan
- Lecturers R. J. Bond, C. J. Brinkman, D. K. Good, F. X. McKenna, J. F. Regan, D. E.

* On sabbatical leave 1964-65

* On sabbatical leave fall semester 1964-65

Russell, L. E. This, D. E. Van Tijn, Jr., C. R. Allen, Jr., J. E. Daly, Jr., Richard Foster, Aladino Gavazzi, J. F. Lieblich, O. B. Martinson, R. W. Perkins, J. A. Schaffer, Marjorie Quandt

Instructor J. R. Roman, Jr.

Associate Charles Eskew

ACCOUNTING

FIRST GROUP

1-2 *Introductory Accounting* (3-3)

First half: basic principles underlying accounting records, preparation of the work sheet and financial statements, accounting for single proprietorships and partnerships. *Second half:* accounting for corporations and introduction to cost accounting, analysis of financial statements, and valuation and amortization problems. Prerequisite to Accounting 2: Accounting 1 or permission of the instructor. (First half: fall and spring—day and evening; summer 1964. Second half: fall and spring—day and evening; summer 1964.)

The Staff

SECOND GROUP

101 *Cost Accounting* (3)

Theory and purposes of industrial cost accounting; treatment of systems of cost control and determination; analysis and interpretation of cost data; job, process, and standard cost systems. Prerequisite: Accounting 1-2. (Fall—day and evening; spring—day; summer 1964.)

Coughlan

111 *Financial Statement Analysis* (3)

Methods and techniques of preparing, analyzing, and interpreting financial statements for the guidance of operating executives, directors, stockholders, and creditors; influence of price level changes on accounting data; determination and interpretation of trends and ratios. Prerequisite: Accounting 1-2 or permission of the instructor. (Fall—day; spring—evening; summer 1964.)

Kennedy, Steele

115 *Survey of Accounting* (3)

An introduction to the basic principles underlying financial statements and financial records with emphasis on the use of accounting information in the management process. Study of theory, terminology, cost accounting, and interpretation of financial data. Not open for credit to Accounting or Business Administration majors. (Fall and spring—evening; summer 1964.)

Coughlan, Gallagher

121-22 *Intermediate Accounting* (3-3)

First half: valuation and amortization problems of current assets, long term investments, tangible fixed assets, intangible assets, and deferred charges; accounting for current, noncurrent, contingent, and estimated liabilities. Prerequisite to 121: Accounting 2 or permission of the instructor. *Second half:* accounting for the organization, financing, operation, and dissolution of corporations and partnerships; basic principles of commitment and installment sales. Prerequisite to 122: Accounting 121 or permission of the instructor. (Academic year—day and evening.)

Kurtz, Simpson

132 *Accounting Theory* (3)

Development of basic accounting principles and concepts with a review of some of the major contributions to accounting literature and with special reference to current thought as reflected in the pronouncements of the American Institute of Certified Public Accountants and the American Accounting Association. Prerequisite: 6 hours of accounting. (Spring—day; summer 1964.)

Kennedy

141 *Governmental Accounting* (3)

Lewis
Problems relating to governmental appropriation accounts, encumbrances, and fund accounting. Emphasis on municipal and state government accounting with an introduction to federal accounting. Prerequisite: Accounting 1-2 or permission of the instructor. (Fall-evening.)

144 *Federal Accounting* (3)

Lewis
Accounting procedures in the Federal Government, with emphasis on agency level accounts, implementation of accrued expenditure legislation, and accounting support for cost-based budgets. Accounts of United States Treasury; current concepts of allotment, obligation, and disbursement accounting, and reporting. Prerequisite: Accounting 141 or permission of the instructor. (Spring-evening.)

161 *Income Tax Accounting* (3)

Gallagher
Problems involved in the federal income taxation of individuals and corporations. Differences between tax accounting and financial accounting, social security taxes. Prerequisite: Accounting 1-2. (Fall-day and evening.)

162 *Federal Tax Practice* (3)

Gallagher
Advanced problems of federal tax practice such as the tax treatment of partnerships, estates, trusts, corporate reorganizations, foreign income and gifts, loss of the tax services; assessment, collection, and refund procedures. Prerequisite: Accounting 161 or permission of the instructor. (Spring-evening.)

171 *Auditing* (3)

Kortz
Duties and responsibilities of an auditor; principles and procedures of making audits, techniques of verifying each financial statement item, preparation of audit working papers and reports. Prerequisite: Accounting 121-22. (Fall-evening, summer 1964.)

172 *Auditing Practice* (3)

Kortz
A critical study of the standards of audit reporting; an advanced study of various auditing procedural problems; and a study of current auditing topics to include the application of statistical sampling techniques to auditing, auditing electronic systems, and management advisory services. Prerequisite: Accounting 171 or permission of the instructor. (Spring-evening.)

181 *Accounting Systems* (3)

Lewis
Theory and procedure of designing and installing accounting systems for collecting, recording, analyzing, and presenting accounting data. Prerequisite: Accounting 101, 121-22, and 171, or permission of the instructor. (Fall-evening.)

191 *Advanced Accounting* (3)

Coughlan, Steele
Consolidated statements, statement of affairs, revaluation and liquidation reports, and estate and trust accounting. Prerequisite: Accounting 121-22. (Fall-evening; summer 1964.)

193 *Business Budgeting* (3)

Lewis, Buckler
Principles, techniques, and procedures involved in the development, installation, and operation of a system of budgetary control to aid in the management of commercial and industrial organizations. Prerequisite: Accounting 1-2. (Fall-day; spring-day and evening; summer 1964.)

196 *Management Decisions and Accounting* (3)

Coughlan, Lewis
An analysis of the information required by management in making capital budgeting, inventory management, and other decisions, and an investigation of the past and prospective ability of the accountant to provide that information. Consideration will be given to the cash flow and probability data needed by modern management and to advanced cost accounting systems. Prerequisite: Accounting 1-2. (Spring-evening.)

198 *Professional Accounting Review* (3)

Lewis

Review and coordination of the principles and techniques developed in the accounting curriculum, in preparation for general practice in the field of accountancy and for professional accounting examinations. Prerequisite: Accounting 101, 141, 162, 171, and 191, or permission of the instructor. (Spring—evening.)

THIRD GROUP

211-12 *Managerial Accounting* (3-3)

Kennedy, Higginbotham

First half: analysis of the accounting system with special reference to the use of financial and operating records and accounting reports as tools of management; a study of valuating and accounting problems involving the influence of price level changes on accounting data. Prerequisite: Accounting 1-2 or 114. *Second half:* a study of internal accounting controls, commercial budgets, and cost accounting systems used by management in directing and controlling a business. Prerequisite: Accounting 211. Admission by permission of the instructor. (First half not offered 1964-65. Second half, summer 1964.)

215 *Survey of Managerial Accounting* (3)

Coughlan, Buckler

Nature, preparation, analysis, and interpretation of accounting reports; study of cost accounting, business budgeting, and internal accounting controls with emphasis on their use in the management process. Prerequisite: Accounting 1-2 or 114 or permission of the instructor. Not available for credit to students taking accounting 211-12. (Fall and spring—evening.)

231 *Contemporary Accounting Theory* (3)

Kurtz, Higginbotham

Advanced accounting principles and concepts and recent theories concerned with the valuation and measurement of assets and determination of income. Admission by permission of the instructor. (Not offered 1964-65.)

241 *Accounting and Related Disciplines* (3)

Coughlan

A study of the relationship between accounting and such related disciplines as economics, statistical theory, and operations research with emphasis on what the accounting literature has to offer to these allied fields and to the new ideas and new requirements which these fields may offer to or require upon accounting. Prerequisite: permission of the instructor. (Fall—evening.)

246 *Governmental Accounting and Budgeting Problems* (3)

Lewis

Advanced principles and practices in federal accounting relationship to general policy and administration. Prerequisite: Accounting 143 or permission of the instructor. (Not offered 1964-65.)

275 *Internal Control and Auditing* (3)

Coughlan, Kurtz

Internal accounting controls; review and appraisal of accounting systems, procedures, and personnel policies with respect to their effectiveness and practicalness. Emphasis on the use of internal control and auditing as an aid to management. Prerequisite: Accounting 171 or permission of the instructor. (Summer 1964.)

295-96 *Seminar in Accounting* (3-3)

Kennedy

Selected accounting research topics and problems; individual oral and written reports. Admission by permission of the instructor. (Academic year—evening.)

297-98 *Accounting Reading and Research* (3-3)

The Staff

(Academic year—as arranged.)

299-300 *Thesis* (3-3)

The Staff

(Academic year—as arranged; summer 1964.)

BUSINESS AND PUBLIC ADMINISTRATION

THIRD GROUP

- 201 *Advanced Administrative Management* (3) Eastin, Erierson
An advanced course in a broadening emphasis principles and practices common to administrative units of all kinds. (Fall—day and evening; spring—evening; summer 1964)
- 204 *Quantitative Factors in Administration* (3) Tosini
Developments in quantitative methods of administration. (Fall and spring—evening)
- 205 *Seminar: Communication and Executive Action* (3) Morrow
Seminar in the communication processes. Research and analysis, identification of factors relating to receptivity; the dynamics of communication. (Spring—evening)
- 206 *Personnel Management* (3) Torpey
Basic principles; creation and organization of personnel offices; recruitment; inter-agency relationships; personnel staffing, training, and work measurement. (Fall—summer 1964)
- 207 *Human Factors in Administration* (3-4) Eastin, Erierson, Pollack
Individual, group, intergroup, and other human behavior and development; application of social science research to administration. Practical applications will be emphasized. (Academic year—evening, summer 1964)
- 202 *Contemporary Administrative Theory and Practice* (3) Erierson
Current theories and trends in management with particular emphasis to the behavioral sciences; foundations and applicability of research. (Spring—evening, summer 1964)
- 200 *Management Engineering* (3) Glowinski
Analysis of the techniques for initiation and implementation of management engineering programs, with emphasis on organization and methods systems including the study of work measurements, work simplification, measurement control, and other management measurement systems. (Fall and spring—evening)
- 209 *Management and Information Systems* (3) Page
A broad course in the collection and processing of management information; management systems; work simplification; development of methods, procedures, and systems; systems analysis. Primarily for graduate students in Health Care Administration. (Spring—day and evening)
- 207 *Function of Government in Business* (4) Clatter
Activities of government in their relation to business management in such areas as production, wages, production, and prices. Trend and change in economic activity.

BUSINESS ADMINISTRATION

SECOND GROUP

- 101 *Introduction to Business* (4) Connor
The business environment; its effects upon the business making process. (Fall—day and evening; spring—day)
- 102 *Fundamentals of Management* (3) Erierson, Connor
Planning, organizing, directing, coordinating and controlling the activities of the administrative unit; evaluation of management thinking. (Fall and spring—day and evening, summer 1964)

- 105 *Personnel Management* (3) Eastin, Stonesifer
Industrial personnel and manpower programs, organizations and policy in personnel activities. (Fall—day; spring—evening; summer 1964.)
- 106 *Problems in Personnel Management* (3) Eastin, Stonesifer
Problems of manpower management illustrated by cases drawn from business, industry, and government. Prerequisite: Business Administration 105. (Spring—even-
ing.)
- 107 *Labor Management Contracts* (3) Sommers
Management's role in the negotiation and administration of collective bargaining agree-
ments, as essential to development of good labor-management relations. (Not offered
1964-65.)
- 109 *Office Management* (3)
Organization and layout of an office, use of office machines and appliances, planning
and execution of work, supervision problems. (Fall and spring—evening.)
- 113 *Real Estate* (3) Doubleday
Fundamentals of real estate practice; leasing and property management; valuation,
financing, and taxation. (Fall—evening.)
- 121 *Risk Management* (3) Doubleday
A general course in underlying principles of property, life, marine, and casualty insur-
ance, and the function of insurance in the economic life of a business or individual.
(Spring—evening.)
- 122 *Life Insurance and Estate Planning* (3) Campbell
Life insurance contracts, their use in providing protection and estate development.
(Spring—evening.)
- 131 *Business Finance* (3) Page, Roman
Basic principles involved in the financing of business enterprises. Prerequisite: Ac-
counting 1-2. (Fall—day; spring—day and evening; summer 1964.)
- 136 *Credit Management* (3)
Types and sources of credit information, credit relationships from the standpoint of
the commercial bank and the commercial business enterprise. Prerequisite: Account-
ing 1-2. (Spring—evening.)
- 138 *Investments* (3) Dockeray, Shafner
Analysis of factors of investment credit with application to different types of invest-
ments, proper selection of investments for various classes of investors, regulation. Pre-
requisite: Accounting 1-2, Business Administration 131. (Spring—evening.)
- 141 *Basic Marketing Management* (3) Walters
An introduction to marketing and marketing management in relation to our total econ-
omy and business management, consumer and demand analysis, retailing, wholesaling,
major marketing management problems and policies with particular emphasis on
target decision areas and tools. Prerequisite: Economics 1-2. (Fall—evening;
spring—day; summer 1964.)
- 142 *Marketing Management Problems* (3)
Practical problems of retailers, wholesalers, and manufacturers considered through the
study of cases and first-hand (or simulated) participation in marketing decisions and
the nature of the problem-solving process. Prerequisite: Business Administration 141.
(Not offered 1964-65.)
- 143 *Marketing Research* (3)
Principles and application of marketing research with particular emphasis upon basic
methods and techniques, sources and interpretation of data, and presentation of re-
sults. (Fall—evening.)
- 144 *Sales Management* (3)
Organization of the sales department, sales planning and forecasting, quotas, terri-

ities, performance standards, and analysis and control of distribution costs. Prerequisite: Business Administration 141. (Not offered 1964-65.)

- 147 *Advertising* (3) Idelson
Advertising as a function of marketing and merchandising; uses and limitations of advertising as a tool of management; fundamentals involved in getting a finished advertisement before potential customers; evaluation, criticism and control of advertising. (Fall—evening.)

- 150 *Procurement and Materials Management* (3)
Procurement organization, procedures, and policies; market relationships; selection of materials and sources of supply; procurement information and records; evaluation of procurement practices in industry and government. (Spring—evening.)

- 153 *Traffic Management* (3) Kaye
Organization and records of traffic department; routing of shipments; services by carriers, rates and charges; relation of shipper to transportation agencies. (Spring—evening.)

- 161 *Commercial Law: Contracts, Sales, Agency, and Bailments* (3) Collins, McClure
(Fall—day and evening; summer 1964.)

- 162 *Commercial Law: Negotiable Instruments, Property, Mortgages* (3) Collins, Murphy
(Spring—day and evening; summer 1964.)

- 165 *Law in Relation to the Form of Business Units: Corporations, Partnerships, and Trusts* (3) Murphy
(Fall—evening.)

- 171 *Principles of Transportation* (3) Roman
Impact of transport on society; development, economic characteristics, services, rates, and regulation of the various means of domestic interstate transportation. (Fall—evening.)

- 172 *Public Utilities* (3) Roman
Local and economic meaning of the public utility concept; development, services, economic characteristics, rate-making, and regulation of the various utility industries, with particular emphasis on electric, gas, telephone, and urban transit industries. (Spring—evening.)

- 173 *Commercial Motor Transportation* (3) Roman
Organization, management, services, economic characteristics, rates and regulation of motor transport firms; highway and highway financing problems from the point of view of both producers and users of the services. (Fall—evening.)

- 174 *Commercial Air Transportation* (3) Roman
Organization, management, services, economic characteristics, rates, and regulation of air transport firms; policies and activities of the government in the development, promotion, and control of air transport. (Spring—evening.)

- 175 *Introduction to Foreign Trade* (3) Kaye
Terminology, trade usages and practices, government controls in successful trading, and some basic of international trade, channels to trade, traffic, impact of governmental controls on private trade. Prerequisite: Economics 1-2. (Fall—evening.)

- 176 *Exporting and Importing* (3) Kaye
Policy and operating problems of foreign trade financing, documentation, packing and transportation of shipments, sample purchase transactions, and U. S. Customs procedures and functions. (Not offered 1964-65.)

- 178 *International Business Operations* (3) Ogden
Analysis of overseas projects according to purpose and type of organization; case

studies involving development and management of overseas marketing programs and other operations in different areas of the world. (Spring—evenings)

181. *Manufacturing Production* (3)

Basic principles and methods of manufacturing production. Manufacturing facilities, plant and equipment. Illustrations selected from various process and fabrication industries. (Spring—evenings)

191. *Business Reports and Analyses* (3)

Survey of management information, array and analysis of data, interpretation and presentation of the findings. (Not offered 1964-65.)

193. *Management Communication* (3)

A survey course in the problems of communication: written communication; style and format; oral communication; oral briefing and presentation; group leadership; oral meeting; completed staff work; and related subjects. (Fall—evenings; spring—day)

195. *Controllership* (3)

The duties, responsibilities, and place of the controller in a business organization; relation of controller to other departments and regulatory bodies; and the controller's relation to price setting and investment; innovation; policies; internal auditing; expense control and budgeting; and financial reports to management, stockholders, and employees. Prerequisite: Accounting I-2. Open to students. (Fall—evenings)

196. *Case Problems in Management* (3)

Principles and techniques of management illustrated by cases drawn from business and industry. Prerequisite: Business Administration 100, 106, 131, 141. (Fall and spring—day and evening)

THIRD GROUP

200. *Seminar: Personnel Management* (3)

Discussion of industrial personnel and manpower management, and research in all current problems. (Fall—evenings)

210. *The Personnel Manager* (3)

The job of the personnel manager and his place in the organization; relations of the personnel manager to other executives; the personnel manager's policy role; and his relation with the chief executive. Key problems of the senior personnel executive. (Spring—evenings)

211. *Personnel Management and Industrial Relations* (3)

A survey of personnel management practices and procedures, including labor-management relations. (Fall—day)

213. *Survey of Data Processing* (3)

A survey of existing data processing systems with emphasis on the management problems associated with the installation and use of such systems. (Fall and spring—evenings)

219. *Digital Computer Programming Concepts* (3)

Machine functions and instructions; control, instructions and programs, sub-routines; general purpose programming; business digital processing applications. Prerequisite: Business and Public Administration 100 or permission of instructor. (Fall—evenings)

220. *Computerized Digital Computer Systems* (3)

Functions and capabilities of the range of computers in use today; special purpose industrial equipment, control and production equipment developments. Prerequisite: Business Administration 119. (Spring—evenings)

221. *Applications of Digital Computers* (3)

The application of data processing in the regular operations of the business or government. (Spring—evenings)

ment organization and in establishing flows of management information, systems planning, the impact of Automatic Data Processing on management organization and decision making. Prerequisite: Business and Public Administration 204 and Business Administration 220. (Fall—evening)

- 22 Seminar: *Advanced Digital Computer Concepts* (6) Alexander
Study of advanced problems in the design and application of computer systems. (Spring—evening)

- 27 Linear Programming (3) Bracken
Introduction to the vocabulary and methodology of management science through the study of linear programming techniques. Case studies. Prerequisite: Business and Public Administration 204. (Fall—evening)

- 28 Introduction to Operations Research for Management (3) Bracken
Operations research as an approach to the solution of management problems. Emphasis on the relevance and limitations of operations research. Practical applications are presented. Prerequisite: Business and Public Administration 204. (Spring—evening)

- 29 Corporate Financial Problems (3) Dickeray, Houston
Financial practice in planning, consolidation, and present capital structure adjustment and recapitalization. (Fall—evening)

- 32 Seminar: *Business Finance* (3) Dickeray, Houston
Business to account financial problems. (Spring—evening; evening 6:00)

- 37 Investment Analysis (3) Dickeray, Shaffner
An overview course in the applications of investment principles and analytical techniques to the selection of investments. Prerequisite: Business Administration 100. (Fall—evening)

- 38 Seminar: *Investments* (3) Dickeray, Shaffner
Research in investment problems, techniques of selection and the management of various types of funds. Prerequisite: Business Administration 100. (Fall—offered 1964-65)

- 43 Advanced Marketing Management (3) Walters
Marketing management problems and policies in major decision areas of product policy, channels of distribution, advertising, promotion, selling, sales promotion, pricing and development of integrated marketing programs. Marketing research and other tools useful in decision making. Case analysis. (Fall—evening; summer 1964)

- 44 Seminar: *Marketing Theory* (3) Walters
Critical review of the development of marketing thought and important marketing literature. Social and current problems and/or trends in marketing and their impact on the firm and society. Prerequisite: Business Administration 204. (Spring—evening)

- 45 Advanced Marketing Research (3) Walters
Marketing research as an aid in decision making and increased efficiency in marketing. Marketing research process, critical appraisal of available and existing types of marketing research. Cases, selected readings and research projects. Prerequisite: a course in basic statistics. (Spring—evening)

- 47 Advertising Management (3) Walters
Case studies and text materials dealing with economic determination of advertising expenditures, basic strategy relative to marketing programs, promotional programs, advertising expenditures, organization and scheduling of advertising media selection, and measurement of effectiveness. Advertising research and economic and social aspects. (Fall—evening)

- 48 International Marketing (3) Walters
Introduction to international marketing; foreign demand patterns, product design, distribution, marketing research and trade channels, advertising and promotion, and the policies, marketing research and trade channels, advertising and promotion.

- problems and policies, pricing, credits and collections, and legal aspects of business; an development of effective international marketing strategy (evening). Particular (Spring—
- 250 *Contract Administration* (3) McKenna
The management of government contracts with private suppliers. (Fall—evening)
- 251 *Retail Management* (3)
Managerial problems and policies concerning financing, location, organizational structure, merchandise policies, advertising and sales promotion, personnel management, operating and service policies, accounting and control, and other related retail management problems. Case analysis. (Not offered 1964-65) Ogden
- 252 *Seminar: Foreign Trade* (3)
Research, analysis, and discussion of foreign trade institutions, public and private. (Academic year—evening) The Staff
- 253 *74 Readings in Business* (3-3)
Advanced readings in the fields of finance, marketing, and personnel management. Assigned, by permission of the instructor. (Academic year—evening) Jessup
- 256 *Management in the Armed Forces* (3)
Special problems of military organization and management; applicability of business management techniques to the armed forces. (Not offered 1964-65) Krieger
- 258 *Executive Leadership* (3)
Examination of principles and problems of executive leadership and development; transferable contribution of basic issues and guides to executive action in business and public administration; review of the literature, significant research findings, and practical illustrations. (Fall—evening) Ericson
- 259 *Seminar: Business Management* (3)
Research on various phases of management as practiced in American industry. (Fall and spring—evening; summer 1964) The Staff
- 259-94 *Business Research* (3-3)
(Not offered 1964-65) Strousem (Spring—
- 266 *Seminar: Financial Management* (3)
Research on advanced problems of financial analysis and management. (evening) Jessup
- 297 *Case Studies in Business Administration* (3)
Problems of management are analyzed with the view of developing a practical solution; cases are used to show the problems of personnel in marketing, industrial management, finance, etc. (Fall and spring—evening) Dockera and Staff (Fall
- 299 *Thesis Seminar* (4)
An examination of thesis standards, research philosophy, and methodology. (Fall and spring—evening; summer 1964) The Staff
- 300 *Thesis* (4)
(Fall and spring—evening; summer 1964)

HEALTH CARE ADMINISTRATION

SECOND GROUP

- 131-34 *Survey of Health Care Organization and Procedures* (3-3) Gintzig
(Formerly Health Care Administration 150-31)
Lectures and discussions. (May be awarded.) Primarily for students in Continuing Education in Health Care and related fields or medical care organizations who wish

an overall knowledge of organization and procedures used in hospitals, long-term care facilities such as nursing homes, and homes for the aged. This is a two-semester sequence. (Not open to degree candidates in Health Care Administration.) Students wishing to take the course for graduate credit must take the Health Care Administration 203 laboratory. (Academic year—evening.)

THIRD GROUP

- 202 *Introduction to Health Care Administration* (3) Griffiths
Lecture and discussion (12 hours), laboratory (12 hours). Survey of community health services, public health organizations, voluntary agencies, and private institutions fully exposed to state and national health personnel; medical terminology, communicable diseases, environmental sanitation, and institutions. (Fall—day and evening.)
- 203 *Organization and Management* (3) Grotzig
Lecture and discussion (12 hours), laboratory (12 hours). The history and current character of institutional health care. Organizational functions and structure of various kinds of hospitals and clinics, including long-term care facilities such as mental hospitals, homes for the aged, nursing homes, and others related to health care administration. (Fall—day and evening.)
- 204 *Health Care Administration Planning and Support Agencies* The Staff and Associations (3)
(Formerly, Organization and Management II)
The functions performed and mutual support techniques of hospital, medical, public health, nursing home, planning, educational and student associations. (Fall or spring—as arranged.)
- 205 *Hospital Management Procedures* (3) Leachman, Foster, Schaffer, Cavazzi
Lecture and discussion (12 hours), laboratory (12 hours). A survey of hospital laws, a study of hospital forms, procedures, and systems; hospital programs pertaining to the care of life, safety, fire prevention, personnel, purchasing, and volunteer services; and the operational peculiarities of hospital departments. (Fall as arranged; spring—day and evening.)
- 206 *Case Studies in Health Care Administration* (3) Gibbs
Discussion (12 hours), laboratory (12 hours). General ideas about administration as applied to practical cases. Emphasis on policy making, planning, controlling, and organizing in hospitals. It includes case applications of Health Care Administration law. Prerequisite: Business and Public Administration 201 and Health Care Administration 203. (Spring—day and evening.)
- 207 *Management Analysis in Health Care Institutions* (3) Grotzig
Lecture (12 hours), laboratory (12 hours). Management Engineering, data processing and other methods of collecting, analyzing, recording, and using information that can be made available to administrators of hospitals and other medical care institutions. Part of this time is devoted to an investigation in which written and oral reports are made. (Spring—as arranged.)
- 208 *Health Care Economics* (3) Camp
Lecture (12 hours), laboratory (12 hours). Medical economics including sources of hospital income, fund raising drives, methods of financing, saving, budgeting, and accounting for hospital funds; preparation plans, impact on community of the cost of medical care. (Spring—day and evening.)
- 209 *Planning and Constructing Health Care Facilities* (3) Griffiths
Lecture (12 hours), laboratory (12 hours). Rational and specific aspects of long and short-term health care planning, designing, constructing, purchasing, equipping, and operating. Prerequisite: Health Care Administration 201 and 203. (Spring—day and evening.)

- 213 Administration of Health Care Systems (3)** The Staff
The various patterns of hospital and health care such as church ownership, proprietary, group practice, Salvation Army, governmental, industrial, unions, nursing homes, community, and their special characteristics. (Fall or spring—as arranged.)
- 221-22 Fundamentals of Medical Science and Medical Terminology (3-3)** Quandt
A study of the fundamentals of medical science and medical essentials presented through lectures in the medical specialties. Includes a study of terms related to all areas of medical science, hospital service, and the paramedical specialties. (Academic year—day and evening)
- 223-24 Introduction to Health Records Administration (3-3)** Quandt
Lecture and discussion (2 hours), laboratory (2 hours). History of medical records, report preparation, coding and indexing procedures, ethics, methods of securing and preserving medical records, and medical record practices and procedures in areas such as radiology, pathology, out-patient department, and social services. (Academic year—day and evening.)
- 225-26 Principles and Problems of Health Records Administration (3-3)** The Staff
Lecture and discussion (2 hours), laboratory (2 hours). Research techniques and qualitative analysis pertaining to medical records. Ethics involved in handling records. Problems encountered in medical record departments in hospitals, clinics, and other essentially medical facilities. (Academic year—day and evening)
- 229 Health Records Administration Internship (3)** The Staff
Four-month internship beginning in June of each year, in approved medical facilities under qualified medical records administrators. A final written report of a career work project, assignments for clinical practical experience and practice in the use of standard equipment found in medical records departments. (Not offered 1964-65)
- 250 Administration for Mental Care (3)** The Staff
Special characteristics of administration required in mental hospitals, psychiatric sections of general hospitals, and others. (As arranged.)
- 260 Administration for Long-term Care Facilities (3)** The Staff
A survey of the medical and nursing procedures designed for administrators of long-term care facilities including nursing homes and facilities for the aged. (Fall-evening)
- 261 Business Procedures for Long-term Care Facilities (3)** Capusan
Business procedures with special application to administration of facilities for long-term care including nursing homes and homes for the aged. (Spring-evening)
- 265-66 Readings in Long-term Care Administration (3-3)** The Staff
(Formerly Health Care Administration 262-63)
Assigned readings in selected aspects of administration of long-term care facilities including nursing homes, homes for the aged, and others. (As arranged.)
- 267 Social Gerontology for the Administrator (3)** Tillett
The special characteristics of the elderly with which administrators of long-term care facilities should be acquainted. (Fall—evening)
- 270 Research in Health Care Administration (3)** The Staff
Field research in health care administration. Student investigates some phase of health care administration. Priority for doctoral candidates. Open to other graduate students with the consent of the instructor. (Fall or spring—as arranged; summer 1964)
- 275-76 Readings in Health Care Administration (3-3)** The Staff
Supervised readings in some special areas or subdivisions of health care administration.

- tion. Primarily for doctoral candidates. Open to other graduate students with consent of the instructor. (Academic year—as arranged; summer 1964.)
- 267 *Seminar: Integration of Health Care Administration* (3) The Staff
Primarily for doctoral candidates. (Fall or spring—as arranged.)
- 268 *Seminar: Field Problem Studies in Health Care Administration* (3) The Staff
(3)
Selected administrative issues and problems arising in health care facility situations are discussed and evaluated. (Fall or spring—as arranged.)
- 291-94-95 *Residency I* (3-3-3) Camp, Gibbs
Twelve-month residency, beginning each year June 1 or July 1. Work experience under a qualified preceptor, periodic seminars with the University staff, periodic written progress reports, and a written major report. (Other courses may be substituted for Health Care Administration 294-95 as appropriate.)
- 296-97-98 *Residency II* (3-3-3) Gibbs
For selected students who take a second twelve-month residency.
- 299-00 *Thesis* (3-3) The Staff

PUBLIC ADMINISTRATION

THIRD GROUP

- 21 *Problems of Governmental Organizations* (3) The Staff
Analysis of the application of organizational theories and practices to government agencies, with particular emphasis on internal organization and control. Special problems are examined, such as decentralization, staff line and field headquarters relationships, and the role of committees. (Fall—evening; summer 1964.)
- 22 *Administration in Government* (3) D. Brown, Cloutier
A critical analysis of federal administrative organizations, their achievements and pathologies. The roles of Congress, the Presidency, the Courts, interest groups, political parties, and the public in the administrative process are studied with special attention to centripetal and centrifugal forces at work. (Fall—evening; spring—day.)
- 23 *Comparative Administrative Systems* (3)
Formulation and analysis of the administrative systems of the major foreign governments, with particular attention to practices applicable to administration in the United States. (Not offered 1964-65.)
- 24 *Administration of International and Supranational Activities** Jordan
(3 or 6) (JAU)
Analysis of the evolution and application of the administrative process in selected international and supranational activities. Problems of organization and management of international sponsored and related activities. Prerequisite: Public Administration 215. (Spring—as arranged.)
- 25 *Seminar: Economic Development and Administration* (3) D. Brown
Formulation of the theories of administrative capability from one country to another, factors relating to the indigenous culture, strategies of aid, examination of specific national and international programs. (Fall—evening.)
- 26 *Staff Functions in Government* (3) Cloutier
Designed primarily to provide an understanding of the nature, use, and problems of staff functions as tools of management. Survey of such staff areas as personnel, planning, control, property management, the agency layout, or public relations and information, planning, training, the secretariat, message-handling, etc. (Fall—evening.)

*Offered jointly by The George Washington University and American University. Classes offered at GWU will be designated "P.W.", courses offered at AU will be designated "JAU". (GWU students may also take classes at this University.)

- ment engineering, auditing, accounting, and administrative services. (Fall—even-
ning.)
- 225-26 *Internship in the Administrative Processes* (3-3) Sommers
This course is open only to persons selected by government agencies for participation
in approved intern programs. (Academic year—as arranged.)
- 232 *Federal Personnel Procedures* (3) Torpey
Study of such personnel functions as recruitment, selection, placement, promotion,
supervision, evaluation, classification, and training. Practical problems of personnel
administration. (Spring—evening.)
- 233 *Seminar: Manpower Development and Utilization* (3) Sommers
Research projects and case studies in ways and means of increasing employee perfor-
mance, use of training programs, executive development, incentive systems. (Fall-
evening; summer 1964.)
- 243 *Local Government Law** (3) Mallison
The decision-making processes in metropolitan and local communities; types and ob-
jectives of city, county, and special function local government units; intergov-
ernmental units; intergovernmental relations; original organization and changes; local
lawmaking; community planning and development. (Spring—evening.)
- 244 *Administration in Metropolitan Government* (3) Cloutier
Examination of public administration at the local level. Developments and trends
growing out of the changing urban pattern. (Fall—evening.)
- 246 *Urban Dynamics* (3)
(Formerly Business Administration 213)
Background course for the developing curriculum in city planning. The course traces
the forces that lie behind investment decisions which in turn determine the develop-
ment of cities. (Spring—evening.)
- 251 *Governmental Budgeting* (3) Posner
The role of budgeting in management; the principles and practices of budgetary for-
mulation and administration. (Fall—evening; summer 1964.)
- 252 *Seminar: Planning and Programming* (3) Page
The administrative processes of planning and programming in government, relation
ships to budgeting, planning and programming as a basis of managerial control, eval-
uation of accomplishments. (Fall—evening; summer 1964.)
- 254 *Financial Management in the Federal Service* (3) Krieger
Function of financial management in federal agencies; special problems and needs;
comparisons of the financial management (control) function in government and
business. (Spring—evening.)
- 259 *Government Procurement and Property Management* (3) D. Brown
Principles and practices of government procurement; accounting and inventory; stor-
age, development of specifications; property management. (Spring—evening.)
- 260 *Seminar: Policy Implementation and Administration* (3) D. Brown
Development of agency goals and objectives and administration of agency policies;
influence of materials upon them; factors affecting internal organization and role
of executive in formulating a constructive policy. (Spring—evening.)
- 261 *The Public and the Administrator* (3) Stronsem
The nature of the public interest, ways of determining public opinion, public opinion
and the decision-making process, functions and methods of working with the public,
interest groups, public relations and information programs. (Fall—evening.)

* Same as Law 319.

- 271 *Reading and Conference Course in Public Management and Administration* (3) The Staff
The purpose of this course is to provide advanced students with directed reading in specific areas of public management and administration. (Fall—evening.)
- 272 *Seminar: Public Personnel Administration* (3) Seminars
The purpose of this course is to provide advanced students with directed reading in specific areas of public personnel administration. (Spring—as arranged.)
- 273 *Seminar: Public Administration* (3) The Staff
Advanced research on selected phases of public administration. (Summer 1964.)
- 278 *Case Studies in Public Administration* (3) Seminars, Cloutier
(Formerly Public Administration 212)
Analysis and discussion of problems in public management by use of the case method. (Spring—evening; summer 1964.)
- 279 *Thesis* (3) The Staff
An examination of thesis standards, research philosophy, and methodology. (Fall and spring—evening; summer 1964.)
- 280 *Thesis* (3) The Staff
(Fall and spring—as arranged; summer 1964.)

Greek

Hebrew

See "Classical Languages and Literatures".

History

Professors: E. L. Koyzis, Wood Gray (Chairman), H. M. Merriam, R. H. Davison*
W. C. Davis, R. B. Thompson, R. C. Harlan
Associate Professors: R. F. Mulholland, G. O. Kent
Associate Professors: R. P. Shatley, E. A. Naylor (Fellow)
Associate Professors: I. J. Robertson, Jr., E. E. Simeon
Assistant Professors: C. J. Harlan, P. P. Hall, R. W. Kenney, Michael Cassiter

FIRST GROUP

- 340 *The Development of European Civilization in Its World Context* (3-3) Koyzis, Harlan, Kenney
Prerequisite for freshmen. First half: the political, social, economic, and cultural history of the Western world since 1864-65.

of the Old World from ancient times to 1715. *Second half:* from 1715 to the present. (Academic year—day and evening; summer 1964.)

- 71-72 *The Development of the Civilization of the United States (3-3)* Haskett, Hill, Simons
Primarily for sophomores. *First half:* the political, social, economic, and cultural forces of the United States in their work setting from 1492 to 1865. *Second half:* from 1865 to the present. (Academic year—day and evening; summer 1964.)

SECOND GROUP*

- 105-6 *Introduction to the History of Science (3-3)*
First half: the ancient natural philosophy and the growth of special sciences through the 17th-18th century scientific revolution. *Second half:* the main lines of development of astronomy, physics, chemistry, biology, and medicine from the mid-18th century to the scientific revolution of the early 20th century. Prerequisite: History 89-90 or a background in science. (Academic year—evening.) Kayser
- 109-10 *Ancient History (3-3)*
The political, social, and intellectual aspects will be considered. *First half:* the ancient Near East and Greece. *Second half:* Rome. (Academic year—day.) Kayser
- 111-12 *Medieval History (3-3)*
The political, social, and intellectual aspects will be considered. *First half:* from the 4th to the 12th century. *Second half:* from the 13th through the 16th century. (Not offered 1964-65.) Kayser
- 130 *Nationalism (3)*
The historical evolution of modern nationalism. (Summer 1964.) Herber
- 131-32 *History of Germany (3-3)*
The political, social, and cultural development of the German people. *First half:* from the Reformation to 1871. *Second half:* from 1871 to the present. (Academic year—day.) Herber
- 141-42 *History of France (3-3)*
A survey of the political, social, and cultural history of France. *First half:* from ancient times to 1815. *Second half:* from 1815 to the present. (Not offered 1964-65.) Thompson
- 145-46 *History of Russia (3-3)*
An 1100-year survey of the rise and revolution of Russia. *First half:* Russia under the Old Regime, 860-1900. *Second half:* Revolution and Soviet rule, 1900-1960. (Academic year—day.) Sharkey
- 147 *Economic History of Europe (3)*
European economic development since the Middle Ages with particular emphasis on the period following the Industrial Revolution. The evolution of capitalism and its varying impact upon the societies of Europe will be treated. (Fall—day.) Kent
- 149-50 *European Diplomatic History (3-3)*
Background of the European state system and of diplomatic practices and relations since the Congress of Vienna, with emphasis on the policies and actions of the great powers and their relations. *First half:* 1815-1871. *Second half:* since 1871. (First half 1965-66 and alternate years. *Second half:* fall—evening.) Kent
- 151-52 *History of England and Great Britain (3-3)*
A general survey of the development of English civilization and its impact on Western values. *First half:* to 1600. *Second half:* since 1600. (Academic year—day and evening; summer 1964.) Kenny

* History 89-90 is a prerequisite to courses 105 through 132 and 141 through 146. History 71-72, to courses 131 through 144, either History 89-90 or 71-72, to courses 141 through 146.

- 161 *Ancient Americans* (3) Davis
A study of the Maya, Aztec, Inca, and other early civilizations of North and South America. (Not offered 1964-65.)
- 162 *Iberian Background of Latin America* (3) Davis
History of Spain and Portugal, with emphasis on developments leading to the rise and decline of the Spanish and Portuguese empires. (Not offered 1964-65.)
- 163 *Colonial Latin America* (3) Naylor
Political, economic, social, and institutional developments in Spanish and Portuguese America from the conquest through the wars of independence. (Fall—day.)
- 164 *South America since Independence* (3) Naylor
Development of the independent South American states in the 19th and 20th centuries. (Alternate spring and summer terms; spring—day; summer 1964.)
- 165 *Mexico and the Caribbean since Independence* (3) Naylor
A survey of the republics of Mexico, Central America, and the Caribbean islands. (Fall—day; summer 1965.)
- 170 *American Colonial History* (3) Haskett
The settlement of the British colonies, the development of provincial institutions, and the emergence of an American civilization in the 17th and 18th centuries. (Spring—day; summer 1964.)
- 171-72 *Social History of the United States* (3-3) Gray
Early life, institutions, intellectual, and artistic achievements of the Agrarian Era, 1607-1861, and the Urban Industrial Era, 1861 to the present time. (Academic year—alternate; summer 1964.)
- 173 *Representative Americans* (3) Gray
A biographical approach to national history. Some fifty significant and pivotal personalities in the development of the United States in government, business, science, religion, journalism, the arts, and social reform. (Fall—day.)
- 174 *Economic History of the United States* (3) Sharkey
An analysis of the process of economic growth in the United States from Colonial times to the present. The development of various sectors in the economy such as agriculture, transportation, manufacturing, and banking will be treated and their interdependence stressed. (Spring—day.)
- 175-76 *Political and Constitutional History of the United States* Haskett
(3-3)
First half: to the eve of the Civil War. Second half: the Civil War to 1940. (Academic year—day; summer 1964—History 175 (3).)
- 177 *The South* (3) Robertson
Role of the plantation system and slavery; the sectional conflict, and the problems and progress of the New South. (Not offered 1964-65.)
- 178 *The Civil War* (3) Robertson
A survey of the causative factors leading to Civil War and of the social, political, military, economic, and diplomatic aspects of the War itself; the immediate and long-range effects of the War on American life. (Not offered 1964-65.)
- 179-82 *Diplomatic History of the United States* (3-3) Merriman, Hill
Tensions toward isolation, expansion, and internationalism; disputes with foreign powers and their settlement; and the activities of the American ministers of state and diplomatic agents. First half: to 1898. Second half: since 1898. (Academic year—alternate.)
- 183 *Western Expansion of the United States* (3) Merriman
The political, economic, social, and cultural life of our underlying frontiers. (Spring—day.)

- 184 *Canada and the United States* (3) Merriman
The historical background and main trends in the relationship of the two English-speaking peoples of North America. (Fall—day.)
- 187 *History of Modern China* (3) Gasster
China since 1840, with particular attention given to political developments. (Fall—day.)
- 188 *East Asia in World Affairs* (3) Gasster
The history of Chinese and Japanese relations with the West, emphasizing the roles of China and Japan in international politics from the middle of the 19th century to the present. (Spring—day.)
- 190 *History of India* (3) Thompson
The civilization of India and her neighbors from the beginnings to independence. (Not offered 1964-65.)
- 191-92 *Current History* (1-1)
Contemporary events in their world setting. (Not offered 1964-65.)
- 193 *History of the Near East* (3)
The Byzantine, Arab, Persian, and Islamic backgrounds of Near Eastern history; the rise and decline of the Ottoman Empire; the action of European powers in the area; and the Ottoman breakup into the Turkish Republic and other successor states. (1964-65 and alternate years) (fall—evening.)
- 195-96 *History of East Asia* (3-3) Gasster
The civilizations of China and Japan, with emphasis on cultural development and social organization. *First half:* from the beginnings to about 1800. *Second half:* the traditional concepts in the era of the modern era, and their responses to Western cultural influences since the middle of the 19th century. (Academic year—day and evening; summer 1964—History 196 (3).)
- 197-98 *Proseminar in Latin American Civilization* Davis, Robb, Sammons
(3-3)
Reading course for coordination and review. Open only to majors in Latin American Civilization. (Academic year—as arranged.)
- 199-200 *Proseminar: Readings for the History Major* (3-3) Thompson, Gray, Herber
Limited to majors in History. Readings and discussions on main trends in the history of Western civilization, in its world setting, including representative selections from the classics of historical literature. (Academic year—day and evening.)

THIRD GROUP*

- 211-12 *Reading Course in Medieval History* (3-3) Herber
Primarily for graduate students. (Not offered 1964-65.)
- 241-42 *Seminar in Modern European History* (3-3)
(Academic year—evening.)
- 243 *Reading Course in Modern European History* (4)
For graduate students. (Fall—day.)
- 245-46 *Seminar: Eurasian History* (3-3) Thompson
(Academic year—day.)
- 247-48 *Reading Course in Russian History* (3-3) Thompson
For graduate students. (Academic year—evening.)
- 249 *Seminar: European Diplomatic History* (3)
(Spring—day.)

* Approval of the instructor is required for registration in each third group course.

- 251-52 *Seminar: English History* (3-3)
(Academic year—day.) Kenny
- 261-62 *Seminar: Latin American History* (3-3)
(First half: not offered 1964-65. Second half: spring—day.) Naylor
- 263 *Reading Course in Latin American History* (3)
(Fall—evening.) Naylor
- 271-72 *Seminar: Social History of the United States* (3-3)
(Academic year—day.) Gray
- 273-74 *Reading Course in American Social History* (3-3)
(First half: spring—day. Second half: not offered 1964-65.) Gray
- 275-76 *Seminar: American Political and Constitutional History* (3-3)
(Academic year—evening.) Haskett
- 277-78 *Reading Course in American Political and Constitutional History* (3-3)
For graduate students. (First half: 1964-65 and alternate years: fall—day. Second half: 1965-66 and alternate years—as arranged.) Haskett
- 279-80 *Reading Course in Economic History* (3-3)
(Academic year—evening.) Sharkey
- 281-82 *Seminar: Diplomatic History of the United States* (3-3)
(Academic year—day.) Merriman
- 283-86 *Reading Course in American Diplomatic History* (3-3)
For graduate students. (Academic year—as arranged.) Merriman
- 291-92 *Seminar* (3-3)
Propositor: member of the Department. (Academic year—as arranged; summer 1964—History 292 131.) The Staff
- 293 *Seminar: History of the Modern Near East* (3)
(Fall—evening.)
- 295-96 *Seminar: History of the Modern Far East* (3-3)
(Academic year—day.) Gasster
- 297-300 *Thesis* (3-3)
Required of all candidates for the Master's degree specializing in history. (Academic year—as arranged; summer 1964.) The Staff

Home Economics

Associate Kathryn Towne (Chairman)
Associate Professor in Lectures Mary Osterdorf

- 2 *Advanced Food Preparation* (3)
For application of the fundamental processes of food preparation to a wider range of food materials and various services for different occasions. Material fee, \$18. (Fall)
Osterdorf
- 3 *Home Furnishing* (3)
Home planning from the historic, artistic, economic, and sanitary viewpoints; home furnishings such as linens, dishes, floor covering, mattresses, etc. Material fee, \$5. (Fall)
Towne

- 192 *The Home, Its Management and Equipment* (3) Towne
Economic management of the home; distribution of time and energy; problems in the selection, arrangement, and care of equipment. (Spring—day.)
- 193 *Supervision of Home Management* (3) The Staff
Field work under supervision. Designed to meet requirements of those preparing to teach in federally aided schools. (As arranged.)
- 195 *Special Problems* (3) The Staff
Individual investigation or study under the guidance of a member of the Staff. Topic for 1964-65: Tailoring. (Spring—day.)
- 197-98 *Proseminar* (3-3) The Staff
The study of the most recent materials and problems in the various phases of home economics. (Academic year—day.)

Institute for Sino-Soviet Studies

Kent London, Director

Information concerning courses to be offered jointly with American University will be available in the *Schedule of Courses* for the fall and spring semesters.

ECONOMICS

- 133 *The Economy of the Soviet Union* (3) Gekker
May be approved for graduate credit. (Fall—evening.)
- 267 *The Soviet Economy* (3) Gekker
Development of the Soviet-type economy; organization, policies and problems; monetary, fiscal, production, allocative, foreign trade, economic growth. (Spring—evening.)

EDUCATION

- 281 *Seminar: the Educational System of the Soviet Union* (3)
(Fall—evening.)
- 282 *Seminar: the Educational System of Communist China* (3)
(Spring—evening.)

GEOGRAPHY

- 265 *Seminar: Geography of the Soviet Union* (3) Petrov
A detailed study of the area, including physical features, economic geography, natural and energy resources, and industries. A discussion of the latest Soviet projects of the Soviet transportation system, of agriculture, and of multinational population trends, with emphasis on population patterns along boundaries, especially the Sino-Soviet border. (Fall—evening.)
- 266 *Seminar: Geography of China** (3) (JGW) Petrov
A study of the physical and economic geography of the country, including discussion

*Indicated jointly by GWU, American University, and American University.
at GWU will be designated "JGW"; courses offered at AU will be designated "JAU".
Classes offered at GWU are designated "JGW 200".

of China's emerging industries, energy resources, transportation system. Special emphasis will be given to the population, "excess"—its distribution and significance. Emphasis also on regional geography, particularly on regions along the Sino-Soviet border, Manchuria, Tibet, Mongolia, Inner Mongolia, and Sinkiang. (Spring—evening.)

HISTORY

- 245 *Seminar: Eurasian History* (3) Thompson

A seminar in which students prepare research papers in some selected areas of Eurasian history. For the fall semester 1964, the selected area from which individual topics are chosen will be the Russian revolution. (Fall—day.)

- 246 *Reading Course in Russian History* (2) Thompson

A graduate course for weekly reading and discussion in Russian 19th and 20th century history. Political and intellectual movements reflecting the rise and fall of the revolutionary cycle will be emphasized. (Spring—evening.)

- 247-26 *Seminar: History of the Modern Far East I II* (3-3) Gasser

First half: social and intellectual revolution in Modern China: the replacement of the old hierarchy by the intelligentsia of the 20th century. Emphasis placed upon the radical change that took place after 1919. Second half: the development of United States Far Eastern policy since 1900, with emphasis on the coming of World War II, and United States policy towards China since 1941. (Autumn—Monday.)

POLITICAL SCIENCE

- 245 16 *Seminar: the Sino-Soviet Blues in World Affairs I II* (3-3) London

First half: A study of the most significant issues of the Communist movement and its manifestations particularly in the Soviet Union and Red China; an examination of the concept and structure of the "world socialist system" and of intra-Union relations with special emphasis on the Sino-Soviet dispute. Second half: An examination of the political ramifications of the international Communist movement and Communist relations with the non-Communist world, with special emphasis on the non-aligned countries in Africa, Asia, and Latin America. (First half) fall—evening. Second half* (JGW): spring—evening.)

- 221 *Readings in Socialism and Communism* (3) Kraus

A reading course designed, on the basis of selected readings of both primary and secondary works, to introduce students to the most significant developments in post-Marxian and Marxian socialism and Leninist communism. (Fall—evening.)

- 222 *Seminar: Theoretical Problems of Marxism-Leninism* (3) Kraus

Crucial theoretical problems, such as the nature of revolution, the relationship of the proletarian, the transition to communism, imperialism, and national liberation in their development from Marx and Engels to Lenin, Khrushchev, and Mao-Tse-tung. (Spring—evening.)

- 227 *Seminar: the Politics of Eastern Europe* (3) Maday

Comparative study of the principal political, social, and economic characteristics of the area; analysis of the events since World War II; the Soviet stake in the area; patterns of Soviet domination; efforts toward economic and political integration; the impact of the Sino-Soviet dispute; U. S. policy toward the satellite nations. (Fall—evening.)

- 220 *Seminar: Operational Techniques of International Communism* Motel

Strategy and tactics of the international Communist movement in the post-Stalin period, with emphasis on the major operations of Communist parties, international and national Communist front organizations, and Sino-Soviet Bloc exercises in the free world. Prerequisite: a general understanding of Communist ideology and of the workings of political movements. (Fall—evening.)

231 *Seminar: the Sino-Soviet Conflict** (3) (JGW)

A discussion of the background, development, and status of the conflict within the Communist movement, with special emphasis on the role of the Chinese Communist in the dispute. (Fall—evening.)

Michael

232 *Seminar: International Communication—the Sino-Soviet Orbit* (3)

History and theory of communication; image factors—structure and national character; communication within the Communist orbit with emphasis on media; "socialist orbit" communication to the Free World; Western communication to the orbit, including VOA and BBC. (Spring—evening.)

Karch

233 *Seminar: Soviet Government and Politics* (3)

An analysis of the theoretical and historical bases of the Soviet political system, and the socio-economic setting of its formation; the nature and role of the Party, Government, and mass organizations; and selected problems of domestic and foreign policy. (Fall—evening.)

Overstreet

234 *Seminar: Soviet Internal Policy* (3)

An examination of how Soviet organization and administration and Soviet policies in social and economic, nationality and military matters have been influenced by revolutionary ideas, by traditions, and by accidental events and how the leaders have applied these policies to maintain their power and to transfer man, society, and nature according to their lights. (Spring—evening.)

Block

237 *Chinese Law* (3)

A short survey of the history of Chinese law and its social background; changes of Chinese law between the turn of the century and the end of the Manchu dynasty; legal concepts of the Chinese Republic from 1911 until the communist take over in 1949. The philosophy and development of the communist legal system. (Spring—evening.)

238 *Soviet Law†* (3)

Concept of "socialist legality"; impact of Soviet legal system upon the individual and his relationship with the state and other participants in Soviet society; role of Communist Party in the constitutional framework of the Soviet legal system; Soviet philosophy of law; state (constitutional) law including Soviet federalism, governmental apparatus, and rights and obligations of citizenship; criminal law, including economic crimes, role of social and public organizations in administration of justice, and concept of "administrative" punishment. (Fall—evening.)

Ramundo

253 *Seminar: Chinese Government and Politics* (3)

A discussion of the political institutions and concepts in late imperial times, during the period of the revolution, under the national government, and under the communists. The main emphasis of the seminar will be on the communist period. (Spring—evening.)

Michael

256 *Seminar: the Politics of North Korea and North Vietnam** (1) (JGW)

An assessment of the positions of North Korea and North Vietnam between the Soviet Union and Communist China; history and issues of the Sino-Soviet dispute as related to the Asian situation; the roles of Moscow and Peking in the creation of these two satellites; the techniques applied in the power take-over and the character of leader

Han

* (Inferred month.) The George Washington University and American University classes offered at JGW will be designated "JGW"; classes offered at AU will be designated "JAU". GWU students must register at this University.

† Same as Law 44 (2). Graduate students registering for Political Science 237 make special arrangements with the instructor for supplementary assignments equivalent to one additional semester hour.

‡ Same as Law 44 (1). Graduate students registering for Political Science 256 make special arrangements with the instructor for supplementary assignments equivalent to one additional semester hour.

ship. Internal and external developments of these two regions will be related to the issues involved in the Sino-Soviet dispute; factors and motives which impel leading Communist leaders in North Korea and North Vietnam to support one or the other of the two major Communist powers will be examined. (Spring-evening.)

264 *Seminar: Sino-Soviet Relations with South Asia* (3) Boyd

A discussion of the conflict between Soviet and Chinese Communist aims in relation to India against the background of Soviet and Chinese diplomacy towards India's neighbors, especially Pakistan. (Spring-evening.)

269 *Seminar: Soviet Foreign Policy* (3) Larson

The external policies and relations of the USSR; world objectives of the Soviet leadership; diplomacy in relations with other communist states, with the Western powers, and with other countries; international propaganda, disarmament policy, and foreign economic relations. (Fall-evening.)

270 *Seminar: the Soviet Foreign Policy Process* (3) Metzl

An investigation of the functioning of instruments used to implement Soviet foreign policy as they affect specific policy situations and international political situations. The activities of the Soviet diplomatic apparatus, its negotiation techniques, its modes of operation in the economic, cultural, and trade fields. An investigation of areas of international communism, Soviet and communist fronts, and campaigns toward a better understanding of the wide range of Soviet mechanisms employed abroad to serve foreign policy objectives. (Spring-evening.)

285 *Seminar: Soviet Military Policy and Strategy* (3) Wolfe

Soviet developments in the area of military policy and strategy with some attention to questions of intra-Russ military competition; political context within which Soviet military policy is formulated; significant changes in recent Soviet military thought. (Fall-evening.)

295 *Seminar: China in the Communist Bloc* (3) Hinton

An introduction to methods and bibliography; history of the Chinese Communist movement; ideology and political system; economic and military policy; foreign policy and relations. (Spring-evening.)

296 *Seminar: the Communist Bloc in Far Eastern International Politics* (3) Hinton

The Communist strategy for Asia; Stalin's Far Eastern policy; growth of local Communist movements; impact of World War II; Soviet post-war policy in Asia; victory at China; the Korean and Indochinese wars; armed struggle in South and Southeast Asia; ending of the national liberation; development of the Asian communist states; and communist parties since World War II; Sino-Soviet rivalry. (Fall-morning.)

297 *Seminar: Sino-Soviet Relations with Southeast Asia* (3) Boyd

A survey of the degree of compatibility and conflict between Soviet and Chinese Communist interests and objectives as well as their diplomatic and revolutionary methods in Southeast Asia; the effects of continuing and conflicting policies on Southeast Asian countries. (Fall-evening.)

PSYCHOLOGY

59 *Seminar: Social Psychology of Communism* (3) White

Psychological aspects of authoritarian systems and of all embracing political ideologies; theories and theories in the study of public opinion in the USSR and its satellites; theories of Western communications with the USSR; the nature of Communist propaganda and the appeals of Communism to individual communist countries. (Fall-evening.)

SLAVIC LANGUAGES AND LITERATURE

61-62 *Russian Culture* (3-3) Oikhtovsky

A survey of Russian cultural heritage from the origins of ancient Russia to the present. Lectures, readings, discussion, and individual reports on assigned topics. Two

course may be taken for graduate credit with the approval of the instructor.
(Academic year—evening; summer 1964.)

165 *Soviet Literature* (3)

A survey of major literary figures, literary movements, and literary styles. Revolution and its impact on writers. The theme of the Civil War in literature. The place of the Soviet intelligentsia in Soviet society, revival of the psychological novel, social realism, and government control of literature. This course may be taken for graduate credit with the approval of the instructor. (Fall—evening.)

Popluiko

International Affairs

Professors J. W. Brewer, H. M. Merriman, R. D. Campbell, R. H. Davison*, W. H. Kraus, W. C. Davis, R. B. Thompson, Wilton Schmidt†, C. E. Galbreath, W. L. Taylor, K. L. Landon, J. L. B. Atkinson, H. M. Scott (*Chairman*), J. N. Mosel, W. C. Hopkins, Franz Michael, R. E. Farrell (*Visiting*), Joseph Aschheim

Professorial Lecturers R. L. Garthoff, Lofar Mead, V. P. Petrov, T. W. Wolfe, R. K. White, J. J. Karch, Herbert Block, P. W. Han, Thomas Larson, B. C. Maday

Associate Professors Benjamin Nunn, J. F. Davis, H. R. Laddent, R. S. Jordan, George Stanback, G. D. Overstreet (*Research*), R. C. Boyd (*Visiting*), H. C. Hinton

Associate Professorial Lecturer Warren Eitler

Assistant Professors P. F. Callagher, P. P. Hill, J. K. McDonald, Michael Gaster, Willard Overgaard

Lecturers Bernard Ramundo, Paul Gekker

The International Affairs programs are interdisciplinary in concept and interdepartmental in structure. Programs being developed are: Comparative Institutions and Cultures, Political and Economic Development, International Politics, Law and Organization, National Security, Sino-Soviet Studies. The courses listed below are an indication of the range of elective courses available. For course descriptions see the departmental announcements concerned.

GENERAL

- Anthropology 161, *Language and Culture* (3)
- Anthropology 263, *Culture Contact and Change* (3)
- Economics 181-82, *International Economics* (3-3)
- Economics 246, *Foreign Labor Movements* (3)
- Economics 251-52, *Economic Development* (3-3)
- Economics 281-82, *International Economics* (3-3)
- Economics 224, *United States Foreign Economic Policy* (3)
- Economics 290, *Seminar: International Economics* (3)
- Geography 52, *World Regions* (3)

* On sabbatical leave 1964-65

† On leave of absence 1963-64

- Geography 126, *World Economics* (3)
- Geography 127, *World Population and Settlement* (3)
- Geography 143, *Elements of Political Geography* (3)
- Geography 145, *Psychological Geography* (3)
- Geography 146, *World Political Geography* (3)
- Geography 241-42, *Seminar: Place and Culture* (3-3)
- Geography 253-54, *Seminar: Problems of Developing Nations* (3)
- History 181-82, *Diplomatic History of the United States* (3-3)
- History 183, *Oversea Expansion of the United States* (3)
- History 184, *Canada and the United States* (3)
- History 281-82, *Seminar: Diplomatic History of the United States* (3-3)
- History 285-86, *Reading Course in American Diplomatic History* (3-3)
- *International Affairs 260, *Fundamentals of National Power* (3)
- *International Affairs 261, *International and United States Foreign Policy* (3)
- *International Affairs 262, *National Security Policy of the United States* (3)
- *International Affairs 297, *Readings in International Affairs* (1 to 2)
- *International Affairs 299-300, *Thesis* (3-3)
- Political Science 111, *Introduction to Comparative Government and Politics* (3)
- Political Science 112, *Introduction to Comparative Government and Politics* (3)
- Political Science 117-18, *Political Theory, the Nature and Growth of Political Thought in the West* (3-3)
- Political Science 171, *International Politics* (3)
- Political Science 172, *Organization and Function of the United Nations* (3)
- Political Science 181-82, *Survey of Public International Law and Organization* (3-3)
- Political Science 187-88, *Current Problems in International Politics* (1-1)
- Political Science 197, *Proseminar in International Affairs: Strategies of Contemporary American Foreign Policy* (3)
- Political Science 211, *Readings in Comparative Government and Politics* (3)
- Political Science 212, *Seminar: Comparative Government and Politics* (3)
- Political Science 217, *Seminar: Topics in Political Theory* (3)
- Political Science 218, *Reading Course in Political Theory* (3)
- Political Science 271-72, *Problems in International Organization* (3-3)
- Political Science 273, *Public Opinion and Foreign Policy* (3)
- Political Science 275-76, *Problems in International Politics* (3-3)
- Political Science 281-82, *Seminar: Public International Law* (3-3)
- *Political Science 283, *Topics in International Law* (3)
- *Political Science 285, *Diplomacy Since World War II* (3)
- Psychology 156, *Psychology of Propaganda and Public Opinion* (3)

* Offered in off-campus War College programs only

Psychology 262, *Behavioral Factors in Social Change* (3)
Sociology 144, *Mass Communications* (3)
Sociology 226, *Problems of Underdeveloped Areas* (3)
Sociology 241, *Population Problems* (3)

AFRICA

Geography 155, *Africa* (3)
Political Science 192, *Governments and Politics of North Africa* (3)

FAR EAST

Geography 165, *Eastern and Southeastern Asia* (3)
History 187, *History of Modern China* (3)
History 190, *History of India* (3)
History 195-96, *History of East Asia* (3-3)
Political Science 194, *Governments of China and Japan* (3)
Political Science 293, *Seminar: Governments and Politics of South and Southeast Asia* (3)

LATIN AMERICA

Economics 185-86, *Economic History and Problems of Latin America* (3-3)
Economics 285-86, *Economic Development of Latin America* (3-3)
Economics 287-88, *Latin America: Trade and Commodity Policy* (3-3)
Geography 161, *Latin America* (3)
History 163, *Colonial Latin America* (3)
History 164, *South America since Independence* (3)
History 166, *Mexico and the Caribbean since Independence* (3)
History 261-62, *Seminar: Latin American History* (3-3)
Political Science 177, *Recent Trends in Latin American Politics and Government* (3)
Political Science 277, *Seminar: Latin American Government* (3)
Political Science 278, *Seminar: Latin American Political Philosophy* (3)

MIDDLE EAST

Geography 156, *The Middle East* (3)
History 193, *History of the Near East* (3)
History 291, *Seminar: the History of the Modern Near East* (3)
Political Science 191, *Governments and Politics of the Middle East* (3)
Political Science 292, *Governments and Politics of North Africa* (3)

SINO-SOVIET

- Economics 133, *The Economy of the Soviet Union* (3)
 Economics 267, *The Soviet Economy* (3)
 Education 281, *Seminar: the Educational System of the Soviet Union* (3)
 Education 282, *Seminar: the Educational System of Communist China* (3)
 Geography 265, *Seminar: Geography of the Soviet Union* (3)
 Geography 266, *Seminar: Geography of China** (3) (JGW)
 History 245, *Seminar: Eurasian History* (3)
 History 248, *Reading Course in Russian History* (3)
 History 295-96, *Seminar: History of the Modern Far East I-II* (3-3)
 Political Science 215-16, *Seminar: the Sino-Soviet Blocs in World Affairs I-II* (3-3)
 Political Science 224, *Readings in Socialism and Communism* (3)
 Political Science 225, *Seminar: Theoretical Problems of Marxism-Leninism* (3)
 Political Science 227, *Seminar: the Politics of Eastern Europe* (3)
 Political Science 230, *Seminar: Operational Techniques of International Communism* (3)
 Political Science 231, *Seminar: the Sino-Soviet Conflict** (3) (JGW)
 Political Science 232, *Seminar: International Communication—the Sino-Soviet Orbit* (3)
 Political Science 233, *Seminar: Soviet Government and Politics* (3)
 Political Science 234, *Seminar: Soviet Internal Policy* (3)
 Political Science 237, *Chinese Law†* (3)
 Political Science 238, *Soviet Law‡* (3)
 Political Science 253, *Seminar: Chinese Government and Politics* (3)
 Political Science 256, *Seminar: the Politics of North Korea and North Vietnam** (3) (JGW)
 Political Science 264, *Seminar: Sino-Soviet Relations with South Asia* (3)
 Political Science 269, *Seminar: Soviet Foreign Policy* (3)
 Political Science 270, *Seminar: the Soviet Foreign Policy Process* (3)
 Political Science 288, *Seminar: Soviet Military Policy and Strategy* (3)
 Political Science 295, *Seminar: China in the Communist Bloc* (3)
 Political Science 296, *Seminar: the Communist Bloc in Far Eastern International Politics* (3)

* Offered jointly by The George Washington University and American University. Courses offered at GWU will be designated "JGW", courses offered at AU will be designated "JAU". GWU students register at this University.

† See Law 4-4. Graduate students registering for Political Science 237 make special arrangements with the instructor for supplementary assignments equivalent to one additional semester.

‡ See Law 4-3 (2). Graduate students registering for Political Science 238 make special arrangements with the instructor for supplementary assignments equivalent to one additional semester.

- Political Science 298, *Seminar: Sino-Soviet Relations with Southeast Asia* (3)
 Psychology 259, *Seminar: Social Psychology of Communism* (3)
 Slavic Languages and Literatures 161-62, *Russian Culture* (3-3)
 Slavic Languages and Literatures 165, *Soviet Literature* (3)

WESTERN EUROPE

- Geography 153, *Western Europe* (3)
 Geography 154, *The Mediterranean* (3)
 History 141-42, *History of France* (3-3)
 History 149-50, *European Diplomatic History* (3-3)
 History 241-42, *Seminar: Modern European History* (3-3)
 History 249, *Seminar: European Diplomatic History* (3)
 Political Science 113, *Political Problems of the British Commonwealth of Nations* (3)
 Political Science 178, *International Politics in the Western Hemisphere* (3)

Italian

See "Romance Languages and Literatures".

Journalism

Professor R. P. Schlabach, Jr. (Chairman)
 Associate Professor R. C. Willson
 Lecturers F. L. Dennis, J. V. Hinkel, Louis Robinson, T. R. Smith

FIRST GROUP

- 71-72 *Journalism in American Society* (3-3)
 Evolution of newspapers and other media in relation to political, social, and economic life; the concept of press freedom; problems of contemporary journalism, with special emphasis on press-government relations. (Academic year—day and evening.) Willson

SECOND GROUP

- 111 *Reporting* (3)

Instruction and classroom practice in gathering, evaluating, and writing news; emphasis on newspapers, other media considered. (Fall—day; spring—evening.) Schlabach

- 115 *Editing and Make-up* (3) Schlachach
Editing of news and other material for publication, typography and display; use of pictures and other graphic presentations. (Fall—day.)
- 121 *Advanced Reporting: Magazine Feature Articles* (3) Willson
Instruction and practice in writing magazine articles, material for which is obtained through independent investigation. (Spring—day.)
- 131 *Advanced Reporting: Community News* (3) Schlachach
Instruction and practice in coverage and writing of local news. (Spring—day.)
- 137 *Advanced Reporting: National Affairs* (3) Schlachach
Instruction and practice in coverage and writing of federal government news from the point of view of the press association. (Not offered 1964-65.)
- 140 *Photojournalism* (3) Smith
Photographic techniques affecting publication, the illustration and the story angle, standards of judgment in selection and use of pictures, captions, editing technique, cropping for effective reproduction. (Spring—evening.)
- 142 *Retail Newspaper Advertising* (3) Robinson
Retail newspaper advertising management, coordination of newspaper advertising with retail sales patterns, advertising readership, copy preparation, production methods. (Spring—evening.)
- 143 *Industrial Communications* (3) Willson
An introduction to the field of corporate journalism. Writing and editing the employee magazine. Preparation of annual reports. Editing stockholder publications and external house organs. (Not offered 1964-65.)
- 144 *Advanced Reporting: the Arts and Sciences* (3) Willson
Instruction and practice in writing articles for publication in such fields as the arts, business and economics, science, and technology. (Fall—evening.)
- 145 *Principles and Problems of Public Relations* (3) Hinkel
Principles, problems, and ethics of public relations for government agencies, commercial establishments, educational and other public institutions. Case histories of successful programs. (Fall—Saturday morning.)
- 151 *Editorial Writing* (3) Schlachach
Instruction and practice in writing of editorials on public affairs. (Fall—day.)
- 156 *Seminar* (3) Schlachach
For journalism majors only. Research in areas relating journalism to secondary fields of study. (Spring—as arranged.)
- 160 *Law of the Press* (3) Dennis
Freedom of the press, censorship, legislative controls, publications as contempt of court, copyright, news gathering agencies, labor law and the newspaper business, law of libel, privileged matter, fair comment on public characters, right of privacy. (Fall—Saturday morning.)

Latin

See "Classical Languages and Literatures".

Linguistics—Graduate Study

COMMITTEE ON LINGUISTIC STUDY

J. C. Allee, Jr. (Chairman), W. G. Clubb, P. F. Gallagher, J. C. King, G. E. McSpaden, N. D. Nelson

The following courses in the area of Linguistics are offered by the departments of Columbia College of Arts and Sciences.

ENGLISH

- 125 *Introduction to English Linguistics* (3)
223-24 *Old English* (3-3)

Allee
Allee

GERMANIC LANGUAGES AND LITERATURES

- 201-2 *Middle High German* (3-3)
205-6 *Gothic* (3-3)
209-10 *Old High German* (3-3)
213-14 *Old Norse* (3-3)
223-24 *Linguistic Analysis of Modern German* (3-3)
225-26 *Seminar: Linguistics* (3-3)
227-28 *Sanskrit—Introduction to Indo-European Linguistics* (3-3)

Legner
Legner
King
Allee
King
King, Allee
King

MATHEMATICS

- 101 *Introduction to Mathematical Logic* (3)
122 *Introduction to Abstract Algebra* (3)
124 *Introduction to Matrix Theory* (3)
201-2 *Mathematical Logic* (3-3)

Nelson
The Staff
The Staff
Nelson

PHILOSOPHY

- 196 *Philosophy of Language* (3)

Schlagel

PSYCHOLOGY

- 115 *Psychology of Language and Communication* (3)

Mosé

ROMANCE LANGUAGES AND LITERATURES

FRENCH

- 203 *Problems of Pronunciation and Intonation* (3)
 212 *Historical French Grammar* (3)
 213-14 *Old French* (3-3)

Vigneras

Vigneras

Vigneras

SPANISH

- 203 *Problems of Pronunciation and Intonation* (3)
 212 *Historical Spanish Grammar* (3)
 214 *Old Spanish* (3)

McSpadden

McSpadden

McSpadden

GENERAL COURSES IN ROMANCE LANGUAGES AND LITERATURES

- 270 *Experimental Phonetics* (3)
 270 *Introduction to Romance Philology and Linguistics* (3)

McSpadden

McSpadden

SLAVIC LANGUAGES AND LITERATURES

- 125 *Russian Linguistic Structure* (3)
 126 *Comparative Russian-English Linguistic Structure* (3)

SOCIOLOGY AND ANTHROPOLOGY

ANTHROPOLOGY

- 44 *Language and Culture* (3)
 53 *Anthropological Methods* (3)

Gallagher

Campbell

STATISTICS

- 57-72 *Statistical Information Theory* (3-3)

Kullback

Mathematics

- Graduate Director: Morris, N. D. Nelson (Chairman); I. P. G. Lerman*, N. A.
 Assistant Lecturers: W. H. Marlow, D. M. Driban
 Graduate Professors: W. A. Smith, Howard Koenig, Ludvik Jaron (Fishing), L. M.
 (Fishing)
 Assistant Professorial Lecturer: Joseph Blum
 Assistant Professor: Gena Selby
 Assistant: Mabel Morris, A. J. Zeller, W. P. DeWitt
 *Graduate Fellow

FIRST GROUP*

3 *College Algebra* (3)

Exponents and logarithms; linear equations; complex numbers; quadratic equations; introduction to theory of equations; mathematical induction and the binomial theorem; permutations, combinations, and probability; determinants; progressions. Prerequisite: one year each of high school algebra and high school geometry. (Fall and spring—day and evening; summer 1964.)

The Staff
Prerequisite:
(Fall and

6 *Plane Trigonometry* (3)

Prerequisite: two years of high school algebra and one year of high school geometry; or Mathematics 3 (or concurrent registration therefor). (Fall and spring—day and evening; summer 1964.)

The Staff
(Fall and

9 *General Mathematics I* (3)

For those students in the School of Education or others electing Mathematics 9 and 10 as a terminal sequence in mathematics. Propositional logic and truth values; the number system, number bases, arithmetical computation; algebraic functions; topics from plane geometry. Prerequisite: two years of high school mathematics. Not open to students who have had former Mathematics 2. (Fall and spring—day and evening; summer 1964.)

The Staff
Prerequisite:
(Fall and

10 *General Mathematics II* (3)

An introduction to matrices and vector spaces; non-Euclidean geometry; introduction to concepts of the calculus. Prerequisite: Mathematics 9 or former 2. (Fall—evening; spring—day and evening; summer 1964.)

The Staff
(Fall—eve-

15 *Finite Mathematics I* (3)

Truth value connectives and switching circuits, partitions and counting, probability theory. Prerequisite: two years of high school mathematics. (Fall—day and evening; summer 1964.)

The Staff
(Fall—day and eve-

16 *Finite Mathematics II* (3)

Vectors and matrices, mathematics of finance and accounting, linear programming, introduction to game theory. Prerequisite: Mathematics 15. (Spring—day and evening; summer 1964.)

The Staff
(Spring—day and eve-

21 *Calculus I* (3)

Elementary concepts of analytic geometry. Differentiation and integration of algebraic functions with applications. Prerequisite: Mathematics 3 and 6; or two years of high school algebra, one year of high school geometry, and one-half year of high school trigonometry; or the equivalent. (Fall and spring—day and evening; summer 1964.)

The Staff
(Fall and

22 *Calculus II* (3)

Differentiation and integration of transcendental functions and applications, topics in analytic geometry, techniques of integration. Prerequisite: Mathematics 21. (Fall and spring—day and evening; summer 1964.)

The Staff
(Fall

23 *Calculus III* (3)

Vector concepts, improper integrals, polar coordinates, and infinite series. Prerequisite: Mathematics 22. (Fall and spring—day and evening; summer 1964.)

The Staff
Prerequisite:
(Fall and

24 *Calculus IV* (3)

Multiple integration and partial differentiation with applications, vectors and solid geometry, differential equations. Prerequisite: Mathematics 23. (Fall and spring—day and evening; summer 1964.)

The Staff
(Fall and spring—

27 *Calculus I and II* (6)

The equivalent of Mathematics 21 and 22. (Fall—day.)

The Staff

28 *Calculus III and IV* (6)

The equivalent of Mathematics 23 and 24. (Spring—day.)

The Staff

* New students registering for Mathematics 3, 6, 9, 15, 21, or 27 are required to take a placement examination.

SECOND GROUP*

- 101 *Introduction to Mathematical Logic* (3) Nelson
Development of propositional and predicate calculi, basic semantic concepts, elementary intuitive set theory, Boolean algebra. Prerequisite: Mathematics 24 or former 31, or Philosophy 121. (Fall—evening.)
- 102 *Fundamental Concepts of Mathematics* (3) Nelson
Axiomatic set theory, cardinal and ordinal arithmetic, foundations of the real number system. Prerequisite: Mathematics 101 or permission of the instructor. (Not offered 1964-65.)
- 103 *Introduction to Topology* (3) Kenyon
(1965-66 and alternate years.)
- 111 *Mathematics for Engineers and Physicists I* (3) The Staff
Differential equations, linear algebra. (Fall and spring—day and evening; summer 1964.)
- 112 *Mathematics for Engineers and Physicists II* (3) The Staff
Fourier series, Laplace transformation, partial differential equations. Prerequisite: Mathematics 111 or former 132. (Fall and spring—day and evening; summer 1964.)
- 120 *Introduction to Theory of Numbers* (3)
(1965-66 and alternate years.)
- 122 *Introduction to Abstract Algebra* (3) The Staff
(Fall—evening; spring—day; summer 1964.)
- 124 *Introduction to Matrix Theory* (3) The Staff
Elementary theory of finite vector spaces, determinants, equivalence, matrices with rational elements, singularity of matrices. (Fall—day; spring—evening; summer 1964.)
- 127 *Foundations of Geometry* (3) The Staff
Alternative postulational developments of Euclidean geometry. Non-Euclidean geometries. (Spring—evening.)
- 134 *Introduction to Boundary Value Problems* (3) The Staff
Prerequisite: Mathematics 111 or former 132, or 142. (Spring—day.)
- 137 *Projective Geometry* (3) Dribin
(Fall—evening.)
- 139 *Advanced Calculus I* (3) The Staff
Limits, continuity, real number system, mean value theorems, partial differentiation, implicit function theorems, transformations, and mappings. (Fall—evening; spring—day; summer 1964.)
- 141 *Advanced Calculus II* (3) The Staff
Vector fields, multiple integrals, line and surface integrals, point set theory, theory of integration, improper integrals. Prerequisite: Mathematics 139. (Spring—evening; summer 1964.)
- 144 *Introduction to Infinite Series* (3) Meers
(Fall—evening.)
- 147 *Theory of Differential Equations* (3) The Staff
Prerequisite: Mathematics 139. (Fall—day.)
- 153 *Introduction to Numerical Analysis* (3) Marlow
(Fall—evening.)

* Mathematics 24 or former 31 is prerequisite to all second-group courses. Exception to this regulation may be made for Mathematics 141, 122, and 124. Students anticipating a substantial concentration in mathematics should consult with the Department about early completion of these courses.

157 *Introduction to Complex Variable Theory* (3)
(Fall—day.)

The Staff

167 *Fourier Series and Spherical Harmonics* (3)
Prerequisite: Mathematics 111 or former 132. (Not offered 1964-65.)

THIRD GROUP

201-2 *Mathematical Logic* (3-3)
(1965-66 and alternate years.)

Nelson

220 *Theory of Numbers* (3)
(1965-66 and alternate years.)

237-38 *Theory of Functions of a Complex Variable* (3-3)
A year course; credit is not given for the first half until the second half is completed.
(1965-66 and alternate years.)

The Staff

242 *Infinite Series* (3)
(Spring—evening.)

Mears

243-44 *Numerical Analysis* (3-3)
(1965-66 and alternate years.)

Marlow

249 *Ordinary Differential Equations* (3)
(Fall—day.)

The Staff

250 *Integral Equations* (3)
(Not offered 1964-65.)

The Staff

251-52 *Theory of Functions of a Real Variable* (2-3)
(Academic year—evening.)

253 *Topics in Nonlinear Mathematics* (3)
(Fall—Saturday morning.)

Dribin

255 *Differential Geometry* (3)
(Not offered 1964-65.)

Dribin

256 *Introduction to Algebraic Geometry* (3)
(1965-66 and alternate years.)

257 *Theory of Groups* (3)
(Not offered 1964-65.)

261 *Generalized Functions and Operational Methods* (3)
Theory of generalized functions in one variable. Operational calculus of generalized functions. Applications to differential equations and Fourier analysis. Prerequisite: Mathematics 140. (1965-66 and alternate years.)

Liverman

262 *Advanced Operational Methods* (3)
Generalized functions on test spaces of analytic functions. Operational calculus in several variables. Applications to partial differential and evolution equations of applied mathematics. Prerequisite: Mathematics 261. (1965-66 and alternate years.)

Liverman

263-66 *Modern Algebra* (3-3)
Fundamental concepts of theory of groups, rings, and fields. Theory of finite fields, extension fields, Galois groups, factorization theory in Gaussian domains, and groups with operators. (Academic year—evening.)

Wiegmann

267 *Topics in Matrix Theory* (3)
Theory of linear transformations (vector spaces over a division ring), advanced classical theory, matrix representation of groups and rings, special topics as time allows. Prerequisite: Mathematics 124 and an elementary knowledge of groups, rings, and fields. (1965-66 and alternate years.)

Wiegmann

268 <i>Calculus of Variations</i> (3) (Fall—evening.)	Janos
270 <i>Tensor Analysis</i> (3) (Summer 1964.)	Schay
272 <i>Hilbert Space</i> (3) (Fall—evening.)	Schay
277 <i>Partial Differential Equations</i> (3) (Spring—evening.)	Schay
281-82 <i>Topology</i> (3-3) (Academic year—evening.)	Kanvon
291-92 <i>Seminar: Functional Analysis</i> (1-2) (Academic year—day.)	The Staff
295-96 <i>Reading and Research</i> (3-3) (Academic year—as arranged.)	The Staff
299-300 <i>Thesis</i> (3-3) (Academic year—as arranged; summer 1964.)	The Staff

Microbiology

Professors A. M. Griffin, Mary Robbins, R. C. Parker (*Chairman*)
Associate Professor Rudolph Hersh
Associate Professors Elizabeth O'Hara, Loyis Affronti, Julian Hoptman (*Research*)

Special Lecturers L. S. Baron, F. B. Gordon, Leon Jacobs, M. C. Leikind, T. G. Ward

211 <i>Microbiology</i> (4) Lecture (2 hours), laboratory (2 hours). Graduate course on the study of bacteria, fungi, rickettsiae and viruses. Prerequisite: any biological laboratory science, Chemistry 151-52. Laboratory fee, \$16. (Fall—day.)	The Staff
212 <i>Pathogenic Microbiology</i> (4) Lecture (2 hours), laboratory (2 hours). Continuation of 211 with emphasis upon the harmful activities of microorganisms. Prerequisite: Microbiology 211 or the equivalent. Laboratory fee, \$16. (Spring—day.)	The Staff
217 <i>Advanced Mycology</i> (4) Lecture (2 hours), laboratory (2 hours). Advanced study of the fungi—emphasizing culturing and determinative techniques. Prerequisite: Microbiology 211 or the equivalent. Laboratory fee, \$16. (1965-66 and alternate years: fall—as arranged.)	O'Hern
225 <i>Microbial Chemistry and Physiology</i> (3) A lecture course. The biochemical features peculiar to various microorganisms—especially bacteria—are described and are compared with those of the animal cell. In-depth discussion of the use of microorganisms in the elucidation of problems in biochemistry. Prerequisite: Biochemistry 223-22 or the equivalent. Microbiology 211 or the equivalent is recommended. (1965-66 and alternate years: fall—as arranged.)	Affronti
227 <i>Microbial Pharmacology</i> (2) A lecture course describing the interactions of drugs and microorganisms—action of drugs on microbes, resistance of microbes to drugs, metabolism of drugs by microbes.	Affronti

- Includes discussion of the selective action of drugs toward microbial and animal cells. Prerequisite: Microbiology 225 or permission of the instructor. (1964-65 and alternate years: fall—as arranged.) Griffin
- 230 *Statistics and Microbiology* (3)
The application of statistical methods to the problems of microbiology. For graduate students. Prerequisite: Elementary college algebra. (Spring—as arranged.) Parlett
- 231 *Immunology and Immunochemistry* (4)
Preparation and testing of serological materials. Demonstration of basic serological phenomena. Prerequisite: Microbiology 211. Laboratory fee, \$16. (1964-65 and alternate years: fall—as arranged.) Robbins
- 233 *Virology* (4)
Study of viruses and rickettsiae. Lectures and laboratory exercises. For graduate students. Prerequisite: Microbiology 211. Laboratory fee, \$16. (1965-66 and alternate years: fall—as arranged.) The Staff
- 249-50 *Introduction to Medical Research** (3-3)
Primarily for graduate students. A comprehensive introduction to the major medical research techniques—statistical, physical, chemical, electrical, and radioisotopic—as applied to biological materials in the medical sciences. Laboratory fee, \$5.50 a semester. (Academic year—W 1-5 pm.) The Staff
- 293-94 *Staff Seminar* (1-1)
For graduate students. Bi weekly throughout the year. (Academic year—as arranged.) The Staff
- 295-96 *Research in Microbiology* (arr.)
(Academic year—as arranged.) The Staff
- 299-300 *Thesis* (3-3) The Staff

Music

See "Art"

Pathology

Professors T. M. Peery (Chairman) W. R. Dwyer (Research), F. N. Miller, Jr., Wil-
liam Newman

Associate Professor W. L. Marsh

Assistant Professors Lois Platt (Cytology), Alexander Breslow, F. S. Jannotta

115-16 *Introduction to Medical Science* (1-1)
For students in medical technology at the University Hospital. These lectures, based upon physiology, pathology, and medicine, provide a background for the interpretation of laboratory data. (Academic year—1 hour a week) Marsh and Staff

* An interdepartmental course. The student should register in the department directing his research

- 117-118 *Principles in Medical Technology* (1-4) Marsh and Staff
For students in medical technology at the University Hospital. Theories, principles, and sources of error, of the methods used in clinical chemistry, clinical bacteriology, serology, hematology, and clinical microscopy. (Academic year—4 hours a week.)
- 119-120 *Medical Technology Laboratory* (10-10) Marsh and Staff
Practice and experience by rotation through the various divisions of the Pathology Laboratories of the University Hospital, as follows: hematology and urinalysis, 12 weeks; chemistry, 12 weeks; bacteriology and parasitology, 10 weeks; blood bank, 8 weeks; serology, 4 weeks; tissue pathology, 4 weeks. (30 hours a week for 50 weeks.)

Pharmacology

Professors H. C. Mandel (*Chairman*), Clark Davidson,
Clinical Professor R. G. Smith,
Professorial Lecturer B. B. Brodie,
Assistant Professors V. H. Cobb, Jr., F. M. Farber, Paul Mandel, Melvin Reich (*Research*), W. P. Weiss (*Research*), W. R. Jarboff (*Research*)

Special Lecturer F. E. Hahn

- 121-122 *Introduction to Medical Research** (5-3) Reich and Staff
Primarily for graduate students. A comprehensive introduction to the major medical research techniques—experimental, statistical, physical, chemical, electrical, and radioisotope—as applied to biological materials in the medical sciences. Laboratory fee, \$7.50 a semester. (Academic year—W 1-5 pm.)

- 123 *Pharmacology* (7) Mandel and Staff
Lectures, laboratories, and recitations concerning the interaction of drugs and biological systems as a basis for the rational therapy of disease. Open to qualified medical and dental students. (Fall—9 hours a week.)

- 124-125 *Pharmacological Research* (3-3) The Staff
Primarily for those properly qualified graduate and medical students seeking careers in pharmacology. (Academic year—as arranged.)

- 126-127 *Pharmacology Seminars* (1-1) The Staff
Recent advances in pharmacology. For those interested in pharmacological research. Open to qualified nonmedical students. (Academic year—2 hours a week.)

- 128 *Physiological Disposition of Drugs* (3) Cobb, Davidson
A lecture and seminar course dealing with the fate of drugs in biological tissue. The course of absorption, distribution, chemical alteration, and excretion of drugs, and the physical, chemical, and biological factors affecting these processes. Prerequisite: Pharmacology 121. (Fall, 66 and alternate years; spring—as arranged.)

- 129 *Special Topics in Pharmacology* (arr.) Farber, Mandel, and Staff
A lecture course dealing with select aspects of drug action. Prerequisite: Pharmacology 121. (Academic years—as arranged.)

- 130 *Physiological Techniques in Pharmacology* (3) Farber, Mandel
A series of specially oriented experiments with supplementary lectures designed to train the physiological techniques useful in obtaining information as to mechanisms of drug action.

*The laboratory fee is \$7.50 a semester. The student should receive in the department covering the research.

of action of pharmacological agents. Prerequisite or concurrent registration: Pharmacology 261. (1965-66 and alternate years: fall—as arranged.)

283 *Biochemical Techniques in Pharmacology* (3)

Cohn, Reich

A lecture and laboratory course designed to equip the student with the theory and practice of modern biochemical techniques applicable to the study of the metabolic fate and mechanism of action of drugs. Prerequisite or concurrent registration: Pharmacology 261. (1964-65 and alternate years: fall—as arranged.)

The Staff

299-300 *Thesis* (3-3)

Required of Master of Arts and Master of Science candidates. (Academic year—arranged.)

(Academic year—arranged.)

Philosophy

Associate Professor R. H. Schlagel (*Acting Chairman*)

Assistant Professors C. H. Pfuntner, W. B. Griffith

FIRST GROUP

51-52 *Introduction to Philosophy* (3-3)

The Staff

A critical introduction to the problems of modern philosophy in relation to scientific and social developments since the Renaissance. This course is not merely intended as an introduction to those courses in philosophy which follow but is a unit complete in itself for those students in other departments interested in the problems of philosophy relevant to modern thought. (Academic year—day and evening; summer 1964.)

SECOND GROUP

111-12 *History of Philosophy* (3-3)

Pfuntner

The history of western philosophy from early Greece to Kant, seen as the development and modification of the Hellenic cultural pattern. (Academic year—evening.)

113 *History of 19th and 20th Century Philosophy* (3)

Pfuntner

European philosophy from the time of Kant. "isms" and ideologies at the root of contemporary thought. (Fall—day; summer 1964.)

121-22 *Logic and Scientific Method* (3-3)

Pfuntner

First half: the elementary principles of valid reasoning with emphasis on developing skill in using these principles. *Introductory consideration of symbolic logic, the nature of a formal system.* *Second half:* general analysis of the methods of investigation and reasoning used in the natural and social sciences, procedures and requirements of definition, classification and sorting, analogical and inductive inference, causal interaction, the nature and function of hypothesis, measurement, principles of the theory of probability. (Academic year—day.)

131 *Ethics* (3)

Schlagel

A critical examination of traditional ethical theories from Plato to Ayer. Consideration of the theoretical problems of ethics: the meaning of "good", the nature of ethical judgment, the justification of ethical standards. The course aims at enabling the student to develop his own ethical view as a consequence of his greater understanding of moral phenomena. (Fall—evening; summer 1964.)

- 151 *The Philosophy of Science* (3) Schlager
Brief history of modern science; problems of the meaning of causality, the justification of induction, theories of probability; the nature of scientific explanation and the status of inferred entities; the nature of a mathematical system. Consideration of the philosophic import of certain scientific theories such as Einstein's theory of relativity, Heisenberg's principle of indeterminacy, and Bohr's principle of complementarity. (Fall—day.)
- 152 *Epistemology* (3) Schlager
The meaning and criteria of truth; the meaning and cognitive significance of common sense, scientific, and religious propositions or beliefs. Study of problems related to perception, verification, universals, *a priori* and *a posteriori* knowledge, the concept of mind. (Spring—day.)
- 152 *Aesthetics* (3)
The nature of aesthetic experience, problems of appreciation and judgment in the arts, and of the theories and process of artistic creation. Emphasis on contemporary arts and criticism. (Spring—day.)
- 172 *American Philosophy* (3) Pfuntner
The philosophies of Peirce, Royce, James, Dewey, and Santayana as representatives of American thought. (Spring—day; summer 1964.)
- 180 *Philosophy of History* (3) Pfuntner
Problems of historical knowledge and explanation. Critique of philosophies of history. (Fall—day.)
- 183 *Topics in Contemporary Philosophy* (3)
Intensive study of one selected topic; topic for 1963-64; philosophy in contemporary literature. (Summer 1964.)
- 190 *Philosophy of Language* (3) Schlager
Investigation of the logical syntax of language, different symbolic forms, and problems of meaning; linguistic reference. (Spring—day.)
- 190-200 *Proseminar: Readings for the Major* (3-3) The Staff
Conferences and group discussions in preparation for field-of-study major examination. (Academic year—as arranged.)

THIRD GROUP

- 202 *Readings and Research* (3-3) The Staff
Advanced readings and reports. Investigation of special problems. (Academic year—as arranged.)
- 204 *Seminar: Plato* (3)
Intensive study of Plato's later dialogues. (Spring—evening.)
- 204 *Seminar: Kant* (3) Schlager
A study of one of Kant's Critiques. (Not offered 1964-65.)
- 202 *Seminar: Epistemology* (3) Schlager
Intensive study of selected topics in theory of knowledge. (Fall—evening.)
- 202 *Seminar: Aesthetics* (3)
Intensive study in selected problems. (Not offered 1964-65.)
- 204 *Seminar: American Philosophy* (3) Pfuntner
Topic for spring 1965—development of American Pragmatism. (Spring—evening.)
- 200-200 *Thesis* (1-3) The Staff

RELATED COURSES IN OTHER DEPARTMENTS

Classical Languages and Literatures 71 72. *Greek and Roman Backgrounds in Literature* (3-3)

Mathematics 101, *Introduction to Mathematical Logic* (3)

Psychology 196, *History and Systems of Psychology* (3)

*Physical Education for Men**

Professors W. H. Myers, J. H. Krupa (Chairman) R. G. Hanken, V. J. DeAngelis

Associate Professorial Lecturer W. D. Thompson

Lecturer Pat Abernethy

Assistants W. J. Reinhart, J. V. Camp, V. D. Elder

FIRST GROUP

- 1-2 *Freshman Physical Education* (1-1)
Two periods of supervised activity a week. Physical Education fee, \$4.50 a semester.
(Academic year—as arranged.) The Staff
- 11-12 *Sophomore Physical Education* (1-1)
Two periods of supervised activity a week. Physical Education fee, \$4.50 a semester.
(Academic year—as arranged.) The Staff
- 41 *Personal Health* (1)
Physical, mental, and social health of the individual—understanding, significance, and presentation. Emphasis on personal health knowledge for the future teacher.
(Spring—day.) Krupa
- 43-44 *Techniques of Physical Education Motor Activities* (2-2)
Fundamental skills, rules, and organization. Physical Education fee, \$4.50 a semester.
(Academic year—day.) DeAngelis, Elder
- 45-46 *Teaching Individual and Dual Sports in Secondary Schools* (2-2)
Tennis, golf, swimming, wrestling, badminton, bowling. Physical Education fee, \$4.50 a semester.
(Academic year—day.) Hanken, Krupa
- 47 *Introduction to Physical Education* (2)
An orientation course presenting the problems of physical education, vocational analysis, scientific foundations, and scope of field. (Fall—day.) Myers
- 48 *Introduction to Recreation* (2)
The role of recreation in modern living; current practices in community recreation; standards of training, experience, and safety; types of leadership. (Spring—day.) Hanken

*The University is not responsible for physical injuries or property damage resulting from the use of the equipment of the Department of Physical Education, or the neglect thereof, and assumes no liability for the physical education fee or for the cost of the activity or for the cost of the equipment.

- 49 *Human Anatomy* (3) Stallings
The structure of the human body. Basic course for physical education majors. Also open to both men and women not majoring in Physical Education. Prerequisite: Biology 1-2. (Fall—day.)
- 50 *Kinesiology* (3) Lawrence
A study of the anatomical mechanism of movement, analysis of the action of muscles in physical education activities. Prerequisite: an approved course in anatomy. (Spring—day.)
- 59-60 *Leadership Organization in the Intramural Program* (2-2) DeAngelis
Principles of administration, organization, and supervision of intramural activities in the physical education program of the junior high school, senior high school, and college. (Academic year—day.)

SECOND GROUP

- 161 *Physical Education in the Elementary School* (3) Burtner, Sondergrass
Physical growth and development of the child and adolescent. Survey of age character, statistics and organization of physical education activities for the various age levels in elementary school, playground, and settlement house programs. Methods and materials of tumbling, games, dance, and self-testing activities. (Fall—day; spring—evening; summer 1964.)
- 162 *History and Principles of Physical Education* (3) Stallings, Myers
Survey of history as it relates to contemporary physical education. Study of aims, objectives, and philosophy of physical education. (Fall—day.)
- 165-6 *Adapted Physical Education and Physical Examinations* Lawrence
(3-3)
Cause and correction of faulty body mechanics, physical examination methods for the diagnosis of postural defects, prescription of exercises, and program adaptation. Prerequisite: Physical Education 49 and 50. (Academic year—day.)
- 167 *Teaching Recreational Dance* (1 to 2) Burtner, Mason
Methods and materials for teaching the country and social dances of America and the folk dances of other countries to secondary-school age and adult groups. Square dancing is included. Physical Education fee*, \$4.50. (Fall—day.)
- 168-14 *Practice in Teaching Physical Education Activities* Harken and Staff
(2 to 4-2 to 4)
Principles and methods applied to learning and teaching physical education activities. Supervised laboratory. Physical Education fee*, \$4.50 a semester. (Academic year—day.)
- 165-16 *Teaching Team Sports in Secondary Schools* DeAngelis, Harken
(2 to 4-2 to 4)
Football, basketball, baseball, track and field. Physical Education fee*, \$4.50 a semester. (Academic year—day.)
- 167 *Teaching Modern Dance* (1 to 2) Burtner
Techniques for the teaching of movement as a medium of expression. Practical work in line technique, composition, and the analysis of movement for chosen subject of instrumental value, and expression. Application is made to both secondary school and adult age levels. Physical Education fee*, \$4.50. (1964-65 and alternate years—fall—day.)
- 168 *Dance Production* (1 to 2) Burtner
Planning and staging of performances for demonstrations, dance concerts, and folk festivals. Lighting, costumes, sets, and make-up. Choreography for concerts, musicals, and plays for students taking course for two credits. Physical Education fee*, \$4.50. (1964-65 and alternate years—spring—day.)

*The Physical Education fee is required for registration in one or more of the activities courses.

- 121 *School and Community Health Programs* (3) Krupa
Health services, healthful environment, health instruction, sources of material for general health knowledge. Prerequisite: Biology 1-2. (Fall—evening.)
- 122 *Methods and Materials for Health Education* (3) Stallings
Methods and materials for teaching health. Prerequisite: Biology 1-2. (Spring—evening.)
- 131 *Tests and Measurements in Physical Education* (3) Krupa
Critical survey of tests in physical activities, methods of test construction, elementary statistics. (Fall—day.)
- 132 *Camp Leadership* (1 to 2) Snodgrass
Philosophy and techniques of camp counseling; survey of organization and programs in camp outdoor education. Also open to both men and women not majoring in Physical Education. (Spring—day.)
- 136 *Survey of Dance History and Dance Forms* (3) Burtner
The development of dance from primitive ritual to present day recreational and art forms of the dance. Includes ethnologic dance, practice and discussion of fundamental movement techniques, and composition. (1965-66 and alternate years.)
- 138 *Organization and Administration of Physical Education* (3) Krupa
Organization and administration of physical education programs in elementary and secondary schools and in colleges. Study of plants, fields, equipment, and programs. (Spring—evening.)
- 151-52 *Recreational Leadership Activities* (3-3) Abernethy
Fall semester: basic skills for the preschool and school-age child. Laboratory practice in crafts, music, dramatics, physical and social activities. Spring semester: basic skills for the teenage and adult. Arts and crafts, dramatics, physical and social activities. (1965-66 and alternate years.)
- 158 *Safety Education: Care and Responsibility for Athletic Injuries* (3) DeAngelis
Liability, prevention, and emergency care of all types of injuries with reference to first aid, civil defense, and athletics. Safety education, with emphasis on proper use of personnel, facilities, and equipment. Laboratory experience with physiotherapy equipment. Prerequisite: Biology 1-2. (Spring—day.)
- 161 *Community Organization for Recreation* (3) Thompson
Resources, principles, and methods in organizing community recreation services. (1964-65 and alternate years: fall—evening.)
- 162 *Administration of Community Recreation Programs* (3) Thompson
Factors and problems in administering recreation including surveys, legislation, policies, area, facilities, leadership, finance, and public relations. (1964-65 and alternate years: spring—evening.)

THIRD GROUP

- 211 *Problems in Physical Education* (3)
For experienced teachers. Organization, supervision, and curriculum problems grow out of current issues; program planning policies; competition. (1964-65 and alternate years: fall—evening.)
- 220 *Problems in Health Education* (3)
Health needs, policies and program planning, use of community resources, promising practices in the field. (1964-65 and alternate years: spring—evening.)
- 231 *Evaluation in Physical Education* (3)
Presenting the evaluation program; review of outcomes; analysis of tests and standards; presentation and interpretation of tests, guidance. (1965-66 and alternate years: fall—evening.)

240 *Physical Education for the Atypical* (3)

Adaptations of activities to meet the special needs of students with physical disabilities resulting from such conditions as postural deviations, cardiac irregularities, operations, and poliomyelitis. — (1965-66 and alternate years.)

Physical Education for Women*

Professors Helen Lawrence (*Emeritus*), Elizabeth Burtner

Associate Professors Loretta Stallings (*Chairman*), Lynda George, Joanne Snodgrass

Associate Professorial Lecturer W. D. Thompson

Assistant Professor Jeanette Clapp

Teacher Pat Abernethy

Instructors Donna Abbey, Kathleen Mason, Nan Smith

Associate Mabel McEwan

FIRST GROUP

1.2 *Freshman Physical Education* (1-1)

The Staff

One period of fundamentals of health and physical education and two periods a week chosen from the activities offered each semester.

Fundamentals of physical education; study of the factors involved in the general maintenance of health, efficient use of the body, and fundamentals of movement.

Activities: badminton, basketball, body mechanics, field hockey, recreational dance, golf, fencing, modern dance, skating, swimming, synchronized swimming, tennis, softball, wrestling. Physical Education fee, \$4.50 a semester. (Academic year—day.)

1.2 *Sophomore Physical Education* (1-1)

The Staff

Two periods a week chosen from the activities offered each semester as listed under Freshman Education 1-2. Physical Education fee, \$4.50 a semester. (Academic year—day.)

1.4 *Techniques of Physical Education Motor Activities*

The Staff

(2 to 3, 2 to 3)

Fundamental skills, rules, and organization. Physical Education fee, \$4.50 a semester. (Academic year—as arranged.)

1.4 *Human Anatomy* (3)

Stallings

The structure of the human body. Basic course for physical education majors. Also open to both men and women not majoring in Physical Education. Prerequisite: Biology 1-2. (Fall—day.)

1.4 *Kinesiology* (3)

Lawrence

A study of the anatomical mechanism of movement, analysis of the action of muscles in physical education activities. Prerequisite: an approved course in anatomy. (Spring—day.)

*Lawrence is not responsible for injuries sustained in the course of the physical education activities. The University of Vermont, and the Vermont Council of Physical Education are responsible for the physical education fee a required for registration in our course of the activity course.

- 51-52 *Teaching Physical Education Activities* (2 to 3-2 to 3) The Staff
 Team sports: basketball, hockey, softball, soccer, speedball. Individual and dual sports: tennis, badminton, archery, swimming and diving, lifesaving and water safety. Gymnastics: tumbling, apparatus and trampoline. Physical Education fee*, \$4.50 a semester. (1965-66 and alternate years.)

SECOND GROUP

- 101 *Physical Education in the Elementary School* (3) Burtner, Snodgrass
 Physical growth and development of the child and adolescent. Survey of age characteristics and organization of physical education activities for the various age levels in elementary school, playground, and settlement house programs. Methods and materials of tumbling, games, dance, self testing activities, and body mechanics. (Fall—day; spring—evening; summer 1964.)
- 103 *History and Principles of Physical Education* (3) Stallings, Myers
 Survey of history as it relates to contemporary physical education. Study of aims, objectives, and philosophy of physical education. (Fall—day.)
- 105-6 *Adapted Physical Education and Physical Examinations* Lawrence
 (3-3)
 Cause and correction of faulty body mechanics, physical examination methods for the diagnosis of postural defects, prescription of exercises, and program adaptation. Prerequisite: Physical Education 49 and 50. (Academic year—day.)
- 107 *Teaching Recreational Dance* (1 to 2) Burtner, Mason
 Methods and materials for teaching the country and social dances of America and the folk dances of other countries to secondary school age and adult groups. Square-dance calling is included. Physical Education fee*, \$4.50. (Fall—day.)
- 111-12 *Teaching Physical Education Activities* (2-2) The Staff
 Continuation of methods and materials in activities listed under Physical Education 51-52. Physical Education fee*, \$4.50 a semester. (1964-65 and alternate years; academic year—day.)
- 113-14 *Practice in Teaching Physical Education Activities* The Staff
 (2 to 4-2 to 4)
 Principles and methods applied to learning and teaching physical education activities. Supervised laboratory. Physical Education fee*, \$4.50 a semester. (Academic year—day as arranged.)
- 117 *Teaching Modern Dance* (1 to 2) Burtner
 Techniques for the teaching of movement as a medium of expression. Practical work in body technique, composition, and the analysis of a composition for dance including instrumental, voice, and percussion. Application is made to both secondary school and adult age levels. Physical Education fee*, \$4.50. (1964-65 and alternate years; fall—day.)
- 118 *Dance Production* (1 to 2) Burtner
 Planning and staging of performances for demonstrations, dance concerts, and festivals. Lighting, costuming, sets, and make-up. Choreography for concerts, musicals, and plays for students taking course for two credits. Physical Education fee*, \$4.50. (1964-65 and alternate years; spring—day.)
- 121 *School and Community Health Programs* (3) Krupa
 Health services, healthful environment, health instruction, sources of material for general health knowledge. Prerequisite: Biology 1-2. (Fall—evening.)
- 122 *Methods and Materials for Health Education* (3) Stallings
 Methods and materials for teaching health. Prerequisite: Biology 1-2. (Spring—evening.)

* The Physical Education fee is required for registration in one or more of the activity courses.

- 131 *Tests and Measurements in Physical Education* (3) Krupa
Critical survey of tests in physical activities, methods of test construction, elementary statistics. (Fall—day.)
- 132 *Camp Leadership* (1 to 2) Snodgrass
Philosophy and techniques of camp counseling; survey of organization and programs including outdoor education. Also open to both men and women not majoring in Physical Education. (Spring—day.)
- 136 *Survey of Dance History and Dance Forms* (3) Burtner
The development of dance from primitive ritual to present day recreational and art forms of the dance. Includes ethnologic dance, practice and discussion of fundamental movement techniques, and composition. (1965-66 and alternate years.)
- 138 *Organization and Administration of Physical Education* (3) Krupa, George
Organization and administration of physical education programs in elementary and secondary schools and in colleges. Study of plants, fields, equipment, and programs. (Spring—as arranged.)
- 151-52 *Recreational Leadership Activities* (3-3) Abernethy
Fall semester: basic skills for the preschool and school age child. Laboratory practice in crafts, music, dramatics, physical and social activities. Spring semester: basic skills for the teen-age and adult. Arts and crafts, dramatics, physical and social activities. (1965-66 and alternate years.)
- 158 *Safety Education: Care and Responsibility for Athletic Injuries* (3) DeAngelis
Labatory, prevention, and emergency care of all types of injuries with reference to first aid, civil defense, and athletics. Safety education, with emphasis on proper use of personnel, facilities, and equipment. Laboratory experience with physiotherapy equipment. Prerequisite: Biology 1-2. (Spring—day.)
- 161 *Community Organization for Recreation* (3) Thompson
Resources, principles, and methods in organizing community recreation services. (1964-65 and alternate years: fall—evening.)
- 162 *Administration of Community Recreation Programs* (3) Thompson
Factors and problems in administering recreation including surveys, legislation, program, atom, facilities, leadership, finance, and public relations. (1964-65 and alternate years: spring—evening.)

THIRD GROUP

- 21 *Problems in Physical Education* (3)
For experienced teachers. Organization, supervision, and curriculum problems growing out of current issues; program planning policies; competition. (1964-65 and alternate years: fall—evening.)
- 22 *Problems in Health Education* (3)
Health needs, policies and program planning, use of community resources, promising practices in the field. (1964-65 and alternate years: spring—evening.)
- 23 *Evaluation in Physical Education* (3)
Planning the evaluation program, review of outcomes, analysis of tests and standards, administration and interpretation of tests, guidance. (1965-66 and alternate years.)
- 24 *Physical Education for the Atypical* (3)
Adaptations of activities to meet the special needs of students with physical disabilities resulting from such conditions as postural deviations, cardiac irregularities, operations, and polioconvulsions. (1965-66 and alternate years.)

Physics

Professors G. M. Koehl, Herbert Jehle, H. H. Hobbs (Chairman)

Associate Professors A. J. Zuchelli, Otto Bergmann

Associate Professorial Lecturers H. H. Landon, Jr., Herbert Rabin

Assistant Professors S. S. Yeandle, Jr., Margaret Montzka, J. M. Harrison, Sven Bjorklund

Lecturers J. N. Tryin, K. F. Oerlem, W. J. Condon, Jr.

Instructor N. K. Khatchereassian

FIRST GROUP

1-2 General Physics (4-4)

Lecture (2 hours), recitation (1 hour), laboratory (2½ hours). Principal phenomena of classical and modern physics. *First half: a study in depth of selected topics in classical physics which form a foundation for and lead to an understanding of modern physics. Second half: the fundamental concepts of atomic, nuclear, solid state, and related fields of modern physics.* Prerequisite: two years of college preparatory mathematics or concurrent registration in Mathematics 6. Material fee, \$11 a semester. (First half: fall—day and evening; spring—day. Second half: spring—day and evening.)

The Staff

11 Introductory Physics (3)

An introduction to the phenomena of light, heat, force, energy; vectors; the properties of matter. This course may be taken as a terminal course by nonscience students who wish an introduction to the physical sciences. Prerequisite: high school algebra and plane geometry. Material fee, \$11. (Offered last time—summer 1964.)

Koehl and Staff

12 Introductory Physics (3)

Mechanics, wave motion, and sound. Prerequisite: Physics 11. (Offered last time—summer 1964.)

Harrison and Staff
Material fee, \$11.

13 Introductory Physics (3)

Lecture (1 hour), recitation (1 hour), laboratory (2½ hours). Electricity and magnetism. Prerequisite: Physics 11. Material fee, \$11. (Offered last time: fall 1964—day and evening.)

Harrison and Staff
Elementary electricity
(Summer 1964. Offered last time: fall 1964—day and evening.)

15 General Physics (3)

Lecture (1 hour), recitation (1 hour), laboratory and conference (2½ hours). Electricity and magnetism. Prerequisite: Physics 14, Mathematics 22 (or former 30). Material fee, \$11. (Offered last time: fall 1964—day and evening.)

Hobbs and Staff

16 General Physics (3)

Lecture (2 hours), conference (1 hour). Modern physics, molecular structure of matter, structure of the atom. Prerequisite: Physics 13 or 15, Mathematics 22 (or former 30), and consent of the instructor. (Offered last time: spring 1965—day and evening.)

Hobbs

31-32 Introduction to Theoretical Physics (2-2)

Mechanics, fluid flow, electromagnetic fields, and vibrations, with an introduction to the appropriate theoretical techniques. Prerequisite: one year of calculus and Physics 1-2. (Last offered 1965-66.)

The Staff

51-52 Introduction to Experimental Physics (2-2)

Experiments and lectures on the basic phenomena of physics and techniques of experimentation and interpretation of data. The following areas are covered: statistical

The Staff

treatment of data, electricity and magnetism, electronics, optics, heat, and modern physics. This course is designed to show the phenomena that are the basis of the theoretical aspect of physics and to introduce the student to experimental techniques necessary for further work in natural sciences. Prerequisite: Physics 1-2. Material fee, \$11 a semester. (First offered 1965-66.)

SECOND GROUP*

- 105 *Principles of Electricity* (3) The Staff
Elementary d-c and a-c circuit theory, electric and magnetic fields, dielectric and magnetic materials, motion of charged particles in electric and magnetic fields. Prerequisite: Physics 16, Mathematics 24 (or former 31). (Offered last time: fall 1964—day.)
- 113 *Atomic Physics* (3) Bergmann
Properties of elementary particles, interactions with radiation, atomic structure, optical and X-ray spectra, introduction to wave mechanics. Prerequisite: Physics 16, 101, or 105, or the equivalent, Mathematics 24 (or former 31). (Offered last time: fall 1964—evening.)
- 114 *Statistical Physics* (3) Jehle
Classical and quantum statistics with emphasis on Maxwell-Boltzmann statistics; applications to kinetic theory of gases, gaseous diffusion, specific heats of gases and solids. Prerequisite: Physics 16, Mathematics 24 (or former 31), and permission of the instructor. (Offered last time: spring 1965—evening.)
- 116 *Quantum and Solid State Physics* (3) Hobbs
Primarily for engineers. Prerequisite: Physics 16, Mathematics 111. (Offered last time: spring 1965—evening.)
- 118 *Introduction to Solid State Physics* (3) Rabin
Dielectric and magnetic properties of solids, electron theory of metals, semiconductors, insulators, and plastic flow. Prerequisite: Physics 113. (Summer 1964.)
- 51-52 *Intermediate Laboratory* (2-2) The Staff
Independent work of an advanced nature designed to introduce the student to laboratory and shop techniques and the use of specialized instruments. Prerequisite: Physics 51-52. Material fee, \$11 a semester. (First offered 1965-66.)
- 53 *Advanced Laboratory in Atomic Physics* (3) Hobbs
Prerequisite: Physics 16. Material fee, \$11. (Spring; Saturday—as arranged.)
- 61 *Mechanics I* (3) The Staff
Mechanics of mass points and rigid bodies. Newton's Laws, conservation laws, Euler's equations, inertia tensor, small vibrations, and elements of Lagrange's and Hamilton's equations. (Fall—day and evening.)
- 62 *Mechanics II* (3) The Staff
Basic aspects of elasticity and fluid dynamics, strain tensor, stress tensor, equations of equilibrium, elastic waves, ideal and viscous fluids. (Spring—day and evening.)
- 63 *Optics* (3) The Staff
Oscillations and waves, energy and momentum of the electromagnetic field, interference, diffraction, geometrical optics, optics of crystals and other media, dispersion. (1964-65 and alternate years: fall—day; 1965-66 and alternate years: fall—evening.)
- 64 *Thermodynamics* (3) The Staff
Basic principles of thermodynamics, reversible changes, applications to simple systems, thermodynamic potentials, phase equilibrium. (1964-65 and alternate years: spring—day; 1965-66 and alternate years: spring—evening.)

* Points 1-2, 31-32 (or the equivalent), and the consent of a departmental adviser are prerequisite for second-group courses.

165-66 Electromagnetic Theory (3-3)

The Staff

Development of Maxwell's field equations using vector and tensor calculus, electrostatics, special functions, stationary and nonstationary phenomena, basic circuit theory, electromagnetic waves and radiation, relativistic effects, microscopic basis of the macroscopic theory. (First offered 1965-66.)

167-68 Modern Physics (3-3)

The Staff

The experimental basis of modern physics and an introduction to quantum mechanics and statistical mechanics with applications to atomic and nuclear physics. (First offered 1965-66.)

171 Elementary Solid State Physics (3)

The Staff

Dielectric and magnetic properties of solids, behavior of electrons in metals and semiconductors, lattice defects. (Spring—evening.)

172 Biophysics (3)

Yeandle

Molecular basis of biophysics, biosynthesis and reproduction. (Fall—evening.)

173 Nuclear Reactors (3)

Landon

Neutron physics: sources of neutrons, neutron reactions, slowing down and diffusion; introduction to transport theory; fission processes; reactor types; basic theory of homogeneous and heterogeneous reactors, including specific numerical studies. (Fall—evening.)

THIRD GROUP***231 Electromagnetic Theory: Macroscopic Effects (3)**

The Staff

An advanced presentation of those aspects of electromagnetism having to do with fields in the vacuum and in media, their determination in terms of physical boundary conditions and their effects upon charges and matter; definition of the field quantities, the experimental field relations, solutions for the fields, the effects of dielectrics and magnetic media, time dependent solutions, and basic aspects of optics. (Fall—evening.)

232 Advanced Mechanics (3)

The Staff

The analytic methods of mechanics, which form a basis for modern theory: variational principles, Lagrange's equations, the Hamiltonian formulation, canonical transformations, classical perturbation theory, the transition to the continuum. (Spring—evening.)

233-34 Quantum Mechanics (3-3)

The Staff

The general aspects of quantum mechanics with emphasis upon the developmental principles involved rather than specific applications. Operators and linear algebra, representations and transformation theory, Schrodinger and Heisenberg pictures and their equivalence, eigenstates of the energy, momentum, angular momentum, Pauli theory of the spin, the semi-classical limit, perturbation theory, scattering theory, and the time development operator. (Academic year—evening.)

235 Special Relativity (3)

The Staff

The application of relativistic concepts to the basic fields of physics: space and time, mechanics of point particles, tensors and covariant mechanics of point particles, covariant form of electromagnetism and its connection to Maxwell's equations, relativistic variational principles and conservation laws, relativistic Schrodinger equation, the Dirac equation, and the hydrogen atom. (Fall—evening.)

236 Electromagnetic Theory: Electrodynamics and Radiative Effects (3)

The Staff

Advanced potentials, Lienard-Wiechert potentials, radiation from moving charges, multipole fields, covariant methods, the self-field problem, and Dirac's classical radiation theory. (Spring—evening.)

* Consent of a departmental graduate adviser is required for admission to all third-group courses.

- 241 *Statistical Mechanics* (3) Jehle
An advanced analysis of atomic configurations under thermodynamic conditions using partition functions and cluster expansion techniques. Ideal gases and nonideal gases, electron plasmas, and the liquid state are considered. (Fall—evening.)
- 242 *Atomic and Molecular Structure* (3) Jehle
The structure of atoms and collections of atoms, the energy levels, binding energy, dipole moments, and optical activity. Hartree and Hartree-Fock equations, spin-effects, molecular orbitals, rotational and vibrational effects, paramagnetic resonance, chemical bonding. (Spring—evening.)
- 243 *Solid State Physics: Structure and Bonding* (3) Holtz
The atomic structure of solids and analysis of the binding of crystals. Crystalline forms and symmetries, atomic vibrations and specific heats, sound and optical propagation, the Mossbauer effect, crystalline defects, bonding in the passage from ionic crystals to metals, the Wigner-Seitz calculation. (First offered 1965-66.)
- 244 *Solid State Physics: Electronic Processes in Metals* (3) Zuchelli
The phenomena in metals and semiconductors determined by the electronic states at low energy: bonding, specific heats, magnetic properties, transport phenomena. The effects are handled primarily from the independent particle approximation and many body aspects are discussed. (Spring—evening.)
- 245 *Quantum Electrodynamics: Theory and Applications* (3) Zuchelli
A noncovariant presentation of the lower order effects depending upon the quantal nature of the electromagnetic field: Hamiltonian formulation and field quantization, perturbation calculations, Compton effect, photoelectric effect, electron-electron scattering, pair creation and annihilation, muons of refraction, wave packet difficulties. The physical content of the theory and the problems of computation are presented as a preparation for the more formal nature of the advanced approaches. (Fall—evening.)
- 246 *Quantum Field Theory* (3) Bergmann
A covariant presentation of the general theory of quantized fields, Boson and Fermion fields, theory of the S matrix, dispersion relations, and the renormalization program. (Spring—evening.)
- 247 *Quantum Theory of Many-body Systems* (3) Bergmann
Many approaches to systems of many interacting particles: Balm-Pines theory, superconductivity, development of the effective potential, problems connected with the Fermi surface, perturbative verification of effective methods. (First offered 1965-66.)
- 248 *Elementary Particles* (3) Bjorklund
Scalar, vector, and spinor fields and their particle aspects, weak and strong interactions, symmetry properties, and conservation laws. (Spring—evening.)
- 249 *Irreversible Processes* (3) Yeandle
Extension of thermodynamic concepts to irreversible processes. Discussion of thermodynamic laws and fluxes, and the Onsager reciprocal relations. Review of the statistical mechanical reasons for assuming the postulate of irreversible thermodynamics. (Fall—evening.)
- 250 *Selected Topics in Modern Physics* (3) The Staff
Comments on the established curriculum by offering formal instruction in topics of modern interest to the development of physics and in particular to the members of the graduate research group. (This course may be taken several times for credit with the permission of the graduate adviser.) (Spring—evening.)
- 251 *Laboratory* (2-2) The Staff
Individual work on special topics. Material fee, \$11 a semester. (A one-semester course as arranged.)
- 252 *Seminar* (1-1) The Staff
Review and investigation of special problems. All students registered for a Master's degree in physics are expected to attend this seminar during residence for the degree.

and to take part in its programs. Credit for participation in the seminar work is obtained during the last two semesters of residence; this credit, however, is based upon the seminar work during the entire period of residence. (Academic year—evening.)

The Staff

299-300 Thesis (3-3)

Physiology

Professors C. E. Leese, C. S. Tidball (*Chairman*)
Associate Professors Hortense Louckes (*Research*), Elizabeth Tidball (*Research*)
Assistant Professors Marie Cassidy (*Visiting*), Quentin Hartwig, R. L. Vick (*Visiting*)
Lecturers J. F. Hoffman, D. P. Rall, R. J. Podolsky, P. C. Nelson, Barbara Alving

Special Lecturers S. J. Sarnoff, J. H. U. Brown

115 Introduction to Human Physiology (3)
 Lectures on the fundamentals of physiology in its various subdivisions. Prerequisite: one year of general science or one semester of biological science. (Fall—TTh 8:45-10 am.)

130 Psycho-Physiology (2)
 Lectures on the genesis and expression of personality, with emphasis on the physiological approach. Prerequisite: Physiology 115 or the equivalent and general psychology. (Spring—TTh 5:10 pm.)

150 Medical Physiology
 Lecture and laboratory work in all divisions of physiology. This course is designed for medical students. (Spring—Lecture 6 hours a week, conference 2 hours a week, laboratory 6 hours a week.)

211-12 Problems in Physiology (arr.)
 Directed study under the supervision of a staff member. Prerequisite: Physiology 137, 150, or 232, and the consent of the instructor. (Academic year—as arranged.)

221-22 Physiology Seminar (1-1)
 Prerequisite: Physiology 150 or 232, and a reading knowledge of French or German. (Academic year—as arranged.)

232 Advanced Mammalian Physiology (10)
 Lecture 6 hours a week, laboratory 2 hours a week, laboratory 6 hours a week. Prerequisite: Chemistry 11-12; Mathematics 3; Physics 1 or 2 or 4; or the equivalent. It is recommended that Biochemistry 221-22 be taken as a prerequisite or concurrently. (Spring—MTWF 1-5 pm.)

253 Electronic Instrumentation (2)
 Lecture 1 hour a week, laboratory 3 hours a week. Fundamentals of electronics and their application to measurement of physiological phenomena. Prerequisite: Mathematics 2, Physics 12, and the consent of the instructor. (1964-65 and every fourth year: fall—1-5 pm.)

259 Comparative Physiology (2)
 Lectures and seminars on topics of current interest in comparative physiology, with emphasis on nonmammalian forms. Prerequisite: Physiology 150 or 232, or Zoology 162; and the consent of the instructor. (1965-66 and every fourth year: fall—as arranged.)

- 265 *Physiology of Cell Membranes* (2) The Staff
Lectures and seminars on ionic and molecular transport through biological membranes.
Prerequisite: Chemistry 111-12, or Physics 172, and Physiology 150 or 232, or Biology 110-16; and the consent of the instructor. (1966-67 and every fourth year: fall—*as arranged*.)
- 291 *Biophysics* (2) The Staff
Lectures and seminars on biological topics which require development along physical lines. Prerequisite: Chemistry 111-12 or Physics 172 and the consent of the instructor. (1967-68 and every fourth year: fall—*as arranged*.)
- 295-96 *Research* (arr.) The Staff
Prerequisite: Physiology 150 or 232, or the equivalent. (Academic year—*as arranged*.)
- 299-300 *Thesis* (3-3) The Staff

Political Science

- Professors W. R. West (*Emeritus*), J. W. Bennett, W. H. Kyrie, K. L. London, R. E. Parcell (*Chairman*), H. M. Stout, Franz Michael, H. I. LeBlanc* (*Chairman*)
- Professorial Lecturers† F. M. Riddick, F. L. Hadock
- Associate Professors Benjamin Nimet, H. R. Luchter†, R. S. Jordan, H. D. Hinton, G. D. Overstreet (*Research*)
- Associate Professorial Lecturers H. M. Bain, Jr., J. P. McKnight
- Assistant Professors J. A. Morgan, Jr., Bernard Reich
- Lecturer C. H. Sherman, Jr.

FIRST GROUP

- 1 *Introduction to Government* (3) The Staff
Basic principles and problems of political life: theories, forms, and processes of government in the United States and foreign countries. Attention is also given to international relations. (Fall—evening; spring—day; summer 1964.)
- 2 *The Far East in the Modern World* (3) Michael
The general character of Far Eastern societies and their response to the impact of America, Europe, and Russia. Some attention to American policy in the Far East and the influence of world communism. (Fall—day.)
- 9-10 *Government of the United States*† (3-3) The Staff
First half: structure, powers, and operation of the Federal Government: Congress, the President, and the Supreme Court; elections, political parties, and pressure groups.
Second half: state and local governments; civil rights; major functions of government at federal, state, and local levels. (First half: fall—day and evening; spring—day; summer 1964. Second half: fall—day; spring—day and evening; summer 1964.)

SECOND GROUP‡

- 104 *State and Local Governments* (3) LeBlanc
State, municipal, and other local governmental forms, operations, and problems, with
- * On sabbatical leave for the semester 1963-64.
† On leave of absence, Fall 64.
‡ Prerequisite to 104 is prerequisite to all second group courses.

- attention to policy formulation and administration, and to the forces of practical politics. (Spring—evening.)
- 107 *Problems in Modern Political Thought* (3) Kraus
Development of democratic political institutions and analysis of the main challenges to constitutional democracy in the 19th and 20th centuries. (Not offered 1964-65.)
- 111 *Introduction to Comparative Government and Politics* (3) Stout
Government and politics of the principal constitutional democracies of Western Europe: Great Britain and France. (Fall—day.)
- 112 *Introduction to Comparative Government and Politics* (3) Stout
Government and politics of the principal political systems of Central and Eastern Europe: Germany and the Soviet Union. (Spring—day.)
- 113 *Political Problems of the British Commonwealth of Nations* (3) Stout
From Colonial Empire to modern Commonwealth: questions of equal partnership; governments and policies in the principal Commonwealth states; problems of new states in Asia and Africa. (Fall—day.)
- 117-18 *Political Theory: the Nature and Growth of Political Thought in the West* (3-3) Kraus
First half: from Classical Antiquity to the Middle Ages; the forging of the western political tradition. *Second half:* from the Renaissance and Reformation to recent times. Theoretical foundations of the modern state: morals and politics, sovereignty, absolutism, and resistance; liberalism, democracy, and conservatism. (Academic year—evening.)
- 119-20 *Foundations of American Democracy* (3-3) Morgan
Introduction to political thought in the United States from colonial times to the present. (Academic year—evening; summer 1964—Political Science 119 (3).)
- 121-22 *The Constitution of the United States* (3-3) West
Judicial power of federal courts in constitutional interpretation. *First half:* emphasis on separation of powers, federal-state relationships, and taxation. *Second half:* emphasis on constitutional protection of civil rights. (Academic year—evening.)
- 125 *Legislative Organizations* (3) Riddick
A study of Congress: constitutional aspects, legal analyses of make-up, and political organization. Political and parliamentary principles used in the preparation and enactment of legislation. (1965-66 and alternate years.)
- 141 *The Development of Legal Institutions* (3) Brewer
Introduction to historical jurisprudence; primary attention to the origins of the Roman Law of Continental Europe and of the Anglo-Saxon Common Law. (Fall—day.)
- 145 *Political Parties and Politics* (3) LeBlanc
Organization and operations of political parties in the United States: major and minor parties, bosses and corruption, nominations and elections, influence on President and Congress. (Fall—evening; summer 1964.)
- 146 *Political Pressures and Public Reactions* (3)
Public opinion, special interest lobbies, and pressure groups as they operate on government to influence public policy. (Spring—evening.)
- 151-52 *Public Administration* (3-3)
Introductory survey of the theory and practice of governmental administration and its relation to politics, legislation, the courts, and nongovernmental organizations and interests. (Academic year—evening.)
- 157-58 *Current Problems in Domestic Politics* (1-1) Slayman
Analysis of outstanding contemporary issues in internal American politics with discussion of problems and policies. (Academic year—evening.)

- 167 *Foreign Policy of the United States* (3) Reich
The study of the constitutional and political factors that determine the formulation and execution of the foreign policy of the United States. (Fall—day.)
- 171 *International Politics* (3) Purcell, Nimer
Basic forces underlying the conduct of international relations and the formation of foreign policy; power politics, imperialism, collective security, and international co-operation. (Fall—day and evening; summer 1964.)
- 172 *Organization and Function of the United Nations* (3) Purcell
(Formerly International Organization (the United Nations))
Development and current operation of international organization within the system of sovereign states with emphasis on the United Nations. (Spring—day and evening; summer 1964.)
- 177 *Recent Trends in Latin American Politics and Government* (3) Davis
Types of government, recent developments, and current political conditions in each of the twenty Latin American republics. (Fall—day; summer 1964.)
- 178 *International Politics in the Western Hemisphere* (3) Davis
Political relations of the American Republics in the 19th and 20th centuries, the development of Pan Americanism and the Organization of American States. (Spring—day.)
- 181-82 *Survey of Public International Law and Organization* (3-3) Brewer
(Formerly International Law)
Survey of the public law of nations with emphasis on the law of peace. Neutrality and the so-called law of war receive attention in the second semester. (Academic year—day and evening.)
- 187-88 *Current Problems in International Politics* (1-1) Slayman
Analysis of outstanding contemporary international issues with discussion of problems and policies. (Academic year—evening.)
- 190 *Politics of Middle and Southern Africa* (3) Nimer
(Political Science 190, 191, and 192 replace former 191 and 192)
The political life of the states and dependent territories of sub-Mediterranean Africa, including the upper Nile valley and the Horn of Africa. Special attention to the specifically regional aspect of the foreign policies of these countries. (Fall—day.)
- 191 *Governments and Politics of the Middle East* (3) Reich
(Political Science 190, 191, and 192 replace former 191 and 192)
Domestic and international politics of the Eastern Arab States and Principalities, Turkey, Iran, and Israel. Attention will be given to their roles in regional and international organizations. (Fall—day.)
- 192 *Governments and Politics of North Africa* (3) Reich
(Political Science 190, 191, and 192 replace former 191 and 192)
Domestic and international politics of Algeria, Tunisia, Morocco, Libya, Egypt, and Sudan. Attention will be given to their relations with the states of the Middle East. (Spring—day.)
- 193 *Governments and Politics of South and Southeast Asia* (3)
(Political Science 190 and 191 replace former 191)
Domestic and international politics of the major states in the area with particular reference to India. (Fall—day.)
- 194 *Governments of China and Japan* (3) Michael
(Political Science 193 and 194 replace former 194)
Institutions and processes of government of contemporary China and Japan, with some historical background. Special attention will be paid to ideological forces. (Spring—day.)

- 197 *Proseminar in International Affairs: Strategies of Contemporary American Foreign Policy* (3) Nimer
Analysis of diplomatic, economic, psychological, and military problems of United States foreign policy. Readings, term papers, and discussion. Primarily for seniors in the International Affairs curriculum; open to a limited number of other qualified students. (Fall—evening; spring—day.)
- 199 *American Government and Politics* (3) LeBlanc
Reading and research as a basis for analyzing significant problems of American government and politics. Open to senior students in the Public Affairs and Political Science curricula. (Not offered 1964-65.)

THIRD GROUP

- 203-4 *State and Local Governments* (3-3)
First half: readings and group discussions on the process of politics at the state and local level. Second half: advanced research in selected topics of state and local politics. (Academic year—evening.)
- 209-10 *Seminar: the Federal Government of the United States* (3-3) West
Advanced research including the legislative problems of Congress; relations of Congress with the Administration; constitutional and political powers of the President, the Cabinet, and the Executive Office of the President; the practical politics of the presidency; and presidential policy leadership and control. (Academic year—evening.)
- 211 *Readings in Comparative Government and Politics* (3) Kraus
(Formerly Political Science 213)
Readings and group discussions on methodological questions, comparative political and administrative institutions with attention to legislatures, the changing role of the executive, political parties, constitutional and totalitarian approaches to public management and public service, the role of the military, etc. (Fall—evening.)
- 212 *Seminar: Comparative Government and Politics* (3) Stout
Selected topics and problems of comparative political and administrative institutions and the politics of modern constitutional governments and dictatorships. Each semester is devoted to a selected country or significant institutional or policy problem. Attention will be directed to questions of method. (Spring—evening.)
- 217 *Seminar: Topics in Political Theory* (3) Kraus
Research and discussion on problems of modern political and constitutional theory, theoretical aspects of representative government, democracy, socialism, and totalitarianism. Each semester is devoted to a separately announced topic, such as socialism and communism, theories of resistance and revolution, problems of democratic theory. (Spring—evening.)
- 218 *Reading Course in Political Theory* (3) Kraus
(Formerly Political Science 220)
Readings and group discussions, principally on modern political and constitutional theory since the 17th and 18th centuries. (Fall—evening.)
- 221-22 *The United States Constitution and the Judicial Function* Morgan
(3-3)
Reading and research as a basis for an analysis of constitutional politics and lawmaking. (Academic year—evening.)
- 235 *Metropolitan Problems* (3) Bain
Growth of American cities and changing land use patterns in relation to internal transportation systems. The respective roles of the private automobile and of public transportation. The problems of financing and administering public transportation systems under public and private ownership. (Fall—evening.)

- 245-46 *The American Political Process: Political Parties and Interest Groups* (3-3) LeBlanc
First half: readings and group discussions on the nature and functions of political parties and the role and techniques of political interest groups. *Second half:* seminar on selected topics of American politics requiring the use of basic research materials. (Academic year—evening.)
- 267 *Seminar: Foreign Policy of the United States* (3) Parcell
 Research and selected reading as the basis for an analysis of the foreign policy of the United States, with particular reference to the decision-making process and the execution of policy. (Fall—evening.)
- 268 *Seminar: Comparative Foreign Policies* (3)
 (Political Science 268 replaces former 274)
 Research and selected reading as the basis for an analysis of the foreign policies of major powers, with particular reference to the decision-making process and the execution of policy. (Spring—evening.)
- 271-72 *Problems in International Organization* (2-3)
 Reading and research as a basis for analyzing developments in general and regional international organizations. (Academic year—evening.)
- 273 *Public Opinion and Foreign Policy* (3)
 Development, organization, and operation of international information programs by major world powers. Public opinion in the United States influencing the formation and conduct of foreign policy. (Fall—evening.)
- 275-76 *Problems in International Politics* (2-3) Nimer
 (Political Science 275-76 replaces former 279 and 275)
First half: Readings and discussions to establish familiarity with both recent and older works of theoretical significance in the field of international politics. *Second half:* Examination by means of individual research and class discussion of selected international political problems. Attention to factual and value problems. (Academic year—evening.)
- 277 *Seminar: Latin American Government* (3) Davis
 Analysis of the political structures of selected Latin American republics. Two comparative governments studied each year. (Fall—evening.)
- 278 *Seminar: Latin American Political Philosophy* (3) Davis
 Research in political personalities and philosophies of 19th and 20th century Latin America. (Spring—evening.)
- 301-02 *Seminar: Public International Law* (3-3) Brewer
 Research in the public law of nations, with special attention to problems of pacifism, consent, sanctions, war, neutrality, and state jurisdiction, and to their political implications. (Academic year—day.)
- 303 *Reading Course in African International Politics* (3) Nimer
 Readings and discussions on selected topics in the international politics of Africa: intra-African regional relations, political unions, the African states and the extra-continental world. (Spring—evening.)
- 391 *Government and Politics of the Middle East* (3) Reich
 (Political Science 391 and 392 replace former 2-2)
 Reading and research in selected problems in the government and politics and international relations of the Middle East. (Fall—evening.)
- 392 *Government and Politics of North Africa* (3) Reich
 (Political Science 391 and 392 replace former 2-2)
 Reading and research in selected problems in the government and politics and international relations of North Africa. (Spring—evening.)

- 293 *Seminar: Governments and Politics of South and Southeast Asia* (3)
 (Political Science 293 replaces former 293-94)
 Research and selected reading as the basis for an analysis of the structure, problems, and policies of the governments of selected countries in the area with particular reference to India. (Not offered 1964-65.)
- 299-300 *Thesis* (3-3)
 (Academic year—as arranged; summer 1964.)

The Staff

INSTITUTE FOR SINO-SOVIET STUDIES

- 215-16 *Seminar: the Sino-Soviet Blocs in World Affairs I-II* (3-3)
 224 *Readings in Socialism and Communism* (3)
 225 *Seminar: Theoretical Problems of Marxism-Leninism* (3)
 227 *Seminar: the Politics of Eastern Europe* (3)
 230 *Seminar: Operational Techniques of International Communism* (3)
 231 *Seminar: the Sino-Soviet Conflict* (3)
 232 *Seminar: International Communication—the Sino-Soviet Orbit* (3)
 233 *Seminar: Soviet Government and Politics* (3)
 234 *Seminar: Soviet Internal Policy* (3)
 237 *Chinese Law* (3)
 238 *Soviet Law* (3)
 253 *Seminar: Chinese Government and Politics* (3)
 256 *Seminar: the Politics of North Korea and North Vietnam* (3)
 264 *Seminar: Sino-Soviet Relations with South Asia* (3)
 269 *Seminar: Soviet Foreign Policy* (3)
 270 *Seminar: the Soviet Foreign Policy Process* (3)
 288 *Seminar: Soviet Military Policy and Strategy* (3)
 295 *Seminar: China in the Communist Bloc* (3)
 296 *Seminar: the Communist Bloc in Far Eastern International Politics* (3)
 298 *Seminar: Sino-Soviet Relations with Southeast Asia* (3)

Psychology

Professors Thelma Hunt, J. L. Finan (*Chairman*), E. L. Phillips, J. N. Mosél, B. I. Levy, W. E. Caldwell, R. D. Waik
 Professorial Lecturers Margaret Ives, R. K. White
 Associate Professors C. E. Tuthill, Eva Johnson, C. W. Hill*, Virginia Kirkbride, L. E. Schlesinger (*Research*)
 Associate Professor of Lecturers R. K. Kahn, A. P. Maslow
 Assistant Professors R. E. Nolan, Lila Ghent (*Research*), Jacqueline Goodnow (*Research*), R. R. Bonato (*Research*)
 Lecturer Janet Johnson

* On leave of absence 1964-65

FIRST GROUP

- 1 *General Psychology** (3) The Staff
The fundamental principles underlying human behavior. (Fall and spring—day and evening; summer 1964.)
- 5-6 *Principles and Methods of Psychology** (3-3) Walk and Staff
Lecture (2 hours), laboratory (2 hours). An experimental approach to the understanding of behavior. A variety of individual and class experiments are performed. Required of all psychology majors, who should take the course early in the major. May be taken without Psychology 1. *First half:* awareness, discrimination, sensation, perception, and emotions and their relation to adaptive behavior. *Second half:* topics of motivation, learning, memory, and problem solving. (Academic year—day and evening.)
- 8 *Psychology of Adjustment* (3) The Staff
(Formerly Psychology 4)
Processes involved in the total adjustment of the individual with emphasis on social environment; development in the individual of adjustment techniques. (Fall and spring—day and evening; summer 1964.)
- 22 *Introduction to Educational Psychology* (3) J. Johnson
Consideration of individual and group differences, adjustments, and the psychology of learning in relation to education and training. (Fall—evening; spring—day; summer 1964.)
- 29 *Psychology of Childhood* (3) E. Johnson
A genetic approach to the study of the child. Special emphasis is placed on the socialization process, learning, and the child's view of the world. (Fall—day; spring—evening; summer 1964.)

SECOND GROUP†

- 30 *Abnormal Psychology* (3) Nolan, Hunt, Levy
The causes, diagnosis, treatment, and prevention of the various types of maladjustments and mental disorders. Prerequisite: 6 credits in psychology, or 3 credits in psychology and 6 credits in a biological science. (Fall—day and evening; spring—day; summer 1964.)
- 112 *Psychology of Adolescence* (3) E. Johnson
Psychological characteristics and problems peculiar to adolescence, with emphasis on applications of psychology to solution of such problems. (1964-65 and alternate years; fall—day.)
- 115 *Psychology of Language and Communication* (3) Mosél
An introduction to psycholinguistics and verbal behavior. Information theory, the measurement of meaning, cultural and linguistic structures in the perception and learning of language. (Fall—day.)
- 118 *Physiological Psychology* (3) Finan, Hill
Basic structure and functions of sensory systems, motor systems, central nervous system, autonomic nervous system, and endocrine system with special emphasis upon the relations between physiological functioning and behavior. (Fall—evening; spring—day.)
- 21 *Psychology of Learning* (3) Finan
(Formerly Educational Psychology)
Current learning theories and issues. (Fall—day; summer 1964.)

* Psychology 1 or 5-6 is prerequisite to all other courses in psychology.

† Six credits in first-group courses are prerequisite to all second-group courses.

- 129 Motivational Factors in Personality (3)** Kirkbride
(Formerly Introduction to Counseling)
A survey of basic principles and assessment techniques, with emphasis on applications to counseling. (Fall—evening; summer 1964.)
- 131 Psychological Tests (3)** Hunt
A survey of psychological tests and their more common uses in business, industry, government, law, medicine, and education. Material fee, \$7. (Fall—day; spring—evening; summer 1964.)
- 144 Personnel Psychology (3)** Mosé
Psychological concepts and techniques in personnel management and supervision. Applications to government, industry, and military organizations. (Fall and spring—evening.)
- 148 Psychology of Advertising and Consumer Behavior (3)**
The motivational and social processes in economic behavior. Consideration of current techniques and findings in motivational research. Evaluation of the effectiveness of mass media, public relations programs, and strategies of persuasion. (1965-66 and alternate years.)
- 151 Social Psychology (3)** Tuthill
The social foundations of attitudes and behavior. Individual adjustment to group situation, such as the family, school, fraternity, and occupation. The psychological basis of race prejudice, nationalism, and war. (Fall—evening; spring—day; summer 1964.)
- 156 Psychology of Propaganda and Public Opinion (3)** Tuthill
The psychology of opinion formation, the measurement of opinion, the social determinants of attitudes, the psychological processes in propaganda, the bases of receptivity of propaganda, psychological warfare. (1964-65 and alternate years: spring—evening.)
- 161 Comparative Psychology (3)** Caldwell
A lecture course in animal psychology. Covers psychological processes in invertebrate organisms, evolution of behavior, the place of animal experimentation and research in psychology. (Spring—day.)
- 191-92 Research Problems in Psychology (3-3)** The Staff
Opportunity for work on individual projects using human or lower animal subjects. Offered as individual study plan. Open to qualified students by special permission of the instructor. (Academic year—as arranged.)
- 193-94 Readings in Psychology (3-3)** The Staff
Supervised readings on specific topics in psychology, with conferences, for undergraduate majors. Open only to seniors with 18 or more credits in psychology with a quality-point index of 3.00 or higher. Admission by special permission of the instructor. (Academic year—as arranged; summer 1964.)
- 196 History and Systems of Psychology (3)** Caldwell and Staff
A senior capstone course which includes a survey and integration of the major viewpoints and concepts of psychology. Open to senior majors and, by special permission of the instructor, to other students with 12 or more credits in psychology. (Fall—day; spring—evening; summer 1964.)
- 198 Current Research Issues in Psychology (3)** Walk
Class will be conducted as a seminar and will consider recent experiments in psychology, including those performed by undergraduates. Emphasis is on student participation. Open only to senior psychology majors. (Spring—day.)

THIRD GROUP*

- 201 *Advanced General Psychology* (3) Hill
An integrated review of history, theory, and facts in the area of general psychology: perception, motivation, learning, and cognition. Required of all psychology Master's candidates. (Fall—day; spring—evening.)
- 202 *Psychological Research Methods and Procedures* (3) Walk
Required in all graduate programs. Prerequisites: Experimental Psychology and an elementary course in statistics. (Fall—evening; spring—day.)
- 207-8 *Readings in Psychology for Graduate Students* (3-3) The Staff
Supervised readings with conferences on specified topics in psychology. Open only to students who have had course work in the field of the readings. (Academic year—as arranged; summer 1964.)
- 209 *Seminar: Psychology of Motivation* (3) Caldwell
A consideration of various theoretical approaches to the psychology of motivation and systematic concepts and experimental findings deriving from each approach. (1964-65 and alternate years: fall—evening.)
- 212 *Personality Evaluation by Projective Techniques* (3) Levy
Primary emphasis upon administration and scoring of the Rorschach Test. Prerequisite: Psychology 233. (Fall—day; spring—evening; summer 1964.)
- 213 *Clinical Psychometrics* (3) Ives
A study of the clinical applications of nonprojective tests. Prerequisite: Psychology 233. (Spring—evening.)
- 215 *Advanced Study of Projective Techniques* (3) Nolan, Ives
Primary emphasis upon interpretation of the Rorschach Test. Prerequisite: Psychology 212. (Fall—evening; spring—day.)
- 217 *Seminar: Developmental Psychology* (3) Ghent
(Fall—day.)
- 218 *Seminar: Clinical Psychology—Psychopathology* (3) Nolan
Covers basic etiological factors in behavioral and psychological deviations and disorders. (Fall—day.)
- 219 *Seminar: Clinical Psychology—Psychotherapy* (3) Nolan
Covers theoretical principles underlying psychotherapy, techniques and procedures, and problems of evaluation. (Spring—day.)
- 220 *Seminar: Abnormal Psychology* (3) Hunt
An intensive study of selected problems in the field of abnormal psychology. (Fall—day; spring—evening; summer 1964.)
- 223 *Seminar: Learning* (3) Finan
Selected topics in the psychology of learning. (Spring—evening.)
- 225 *Seminar: Mental Hygiene* (3) Phillips
A study of mental health problems with special attention to needs of counselors, teachers, and others working with children and adolescents. (Fall—evening; spring—day; summer 1964.)
- 226 *Seminar: Clinical Psychology of Childhood and Adolescence* (3) E. Johnson
A survey of behavior and personality disorders. (Spring—evening.)

*Open only to graduate students, except by special permission of instructor and Chairman of the Department.

- 227-28 Seminar: Variations in Psychotherapeutic Approach (3-3)** Kahn
A study of patient needs and demands upon the therapist. Case participation will be heavily relied upon. Open to qualified students in psychology and related fields, with permission of the instructor. (Academic year—day.)
- 231 Test Construction (3)** Mosé
The principles underlying test construction; statistical techniques in the construction, evaluation, and standardization of psychological, educational, and vocational tests. Prerequisite: a course in tests and measurements and an elementary course in statistics. (1965-66 and alternate years.)
- 233 Individual Psychological Testing (3)** E. Johnson
Instruction and practice in giving of the Binet and Wechsler tests. Prerequisite: an elementary course in tests and measurements. Material fee, \$7. (Fall and spring—day.)
- 234 Seminar: Test Theory (3)** Mosé
Development of the axiomatic-deductive theory underlying the major notions in the construction, evaluation, and application of psychological tests. (1964-65 and alternate years: fall—evening.)
- 235 Seminar: Psychological Measurement (3)** Hunt
Advanced instruction in the use and interpretation of psychological tests, with emphasis upon group tests; survey of recent research in psychological measurement. Prerequisite: a course in psychological or educational measurement. (1964-65 and alternate years: spring—evening.)
- 244 Seminar: Job and Worker Analysis (3)** Maslow
An examination of the principles, techniques, and research findings in the description of work performed and in the analysis of qualifications requirements. (Summer 1964.)
- 245 Seminar: Employee Motivation and Morale (3)** Mosé
An analysis of organizational behavior, especially with regard to motivation and productivity. The implications of recent research on employee attitudes, the primary duties, the effects of various patterns of supervisory leadership, the role of formal and informal organization, and job design. (Spring—day and evening; summer 1964.)
- 246 Seminar: Personnel Measurement Techniques (3)** Mosé
Detailed consideration of the techniques of personnel selection and performance evaluation. The use of employment tests, personal data, assessment interviews, and performance ratings. (1965-66 and alternate years.)
- 249 Seminar: Psychological Factors in Design and Operation of Man-Machine Systems (3)** Finan
Includes consideration of psychotechnology versus theoretical psychology, system methodology, personnel selection and utilization, information displays and controls, training, decision making, stress and vigilance, simulation, and evaluation of system performance. Open to qualified students in psychology and engineering, with permission of the instructor. (Fall—evening.)
- 251 Seminar: Advanced Social Psychology (3)** Tuthill
Current research and theory in social psychology; group dynamics, ego-involvements, action research, and social interaction theory. (Fall—evening.)
- 254 Seminar: Group Dynamics (3)** Tuthill
The experimental study of small groups; autocratic and democratic group climates; interaction process analysis; Lewin's field-theoretical approach to individual and group processes. (1965-66 and alternate years.)
- 255 Seminar: Techniques of Opinion and Attitude Measurements (3)** Tuthill
Methods of attitude measurement (interviews, questionnaires, scales, polls) as currently used by private and governmental investigators. The place of attitude studies in schools, industry, government, etc. (1964-65 and alternate years: spring—evening.)

267 Theories of Organization (3)

Schlesinger

Theory and research in formal organizations. Classical, human relations, and information processing theories of organizations. The effects of organizational design on communication processes, leadership, decision-making, intergroup relations, small group formation, status hierarchies, productivity, motivation, and morale. Open to graduate students in psychology and graduate administrative programs. (1965-66 and alternate years.)

272 Seminar: Theories of Personality (3)

Caldwell

A survey of the various theories of personality, with emphasis upon theoretical problems and methodology in the field of personality study. (Fall—evening; summer 1964.)

281-82 Practicum in Counseling (3-3)

Phillips

Supervised practical instruction in agencies doing counseling. Prerequisite: graduate work in counseling. Admission by permission of the instructor. (Academic year—as arranged; summer 1964.)

283-84 Practicum in Clinical Psychology (3-3)

Levy

Supervised practical instruction in agencies doing clinical psychological work. Prerequisite: Psychology 212. Admission by permission of the instructor. (Academic year—as arranged; summer 1964.)

289-90 Seminar: Current Research and Theory in Psychology (3-3)

A review and discussion of contemporary research and theory in some advanced and specialized field of psychological study, by leaders in the field. The specific topic and instructor for each semester will be announced in advance of the beginning of the semester. (Academic year—evening; summer 1964.)

292 Seminar: Perception (3)

Walk

Study of current research and theory in the experimental psychology of perception. (1964-65 and alternate years: spring—day.)

295-96 Research in Psychology (arr.)

The Staff

Individual research by student, carried out under supervision of staff member. (Academic year—as arranged; summer 1964.)

297-98 Seminar: Concepts of Psychology (4-4)

Finan and Staff

Lecture (3 hours), dialogue (1 hour), discussion (2 hours). An overview and analysis of the concepts and major areas of psychology. Designed as a review and integration of knowledge for the Ph.D. candidate preparing for the Comprehensive Examination in general psychology and as a preparation for specialized study and individual research. Required of all Doctoral candidates in psychology. Admission by permission of the instructor. (Academic year—day.)

299-300 Thesis (3-3)

The Staff

(Academic year—as arranged; summer 1964.)

COURSES OFFERED IN COOPERATION WITH OTHER SCHOOLS, COLLEGES, AND DIVISIONS OF THE UNIVERSITY

In addition to the regular courses announced above the University offers the following courses in conjunction with special programs in schools, colleges, and divisions of the University other than Columbian College of Arts and Sciences.

145 Principles of Human Relations (3) (School of Engineering and Applied Science)**149 Human Relations in Management (3)** (College of General Studies)**245 Employer Motivation and Morale (3)**

Mosel

Especially for students in the School of Government, Business, and International Affairs. (Spring—day and evening; summer 1964.)

- 259 *Seminar: Social Psychology of Communism* (3) White
Psychological aspects of authoritarian systems and of all-embracing political ideologies; methods and findings in the study of public opinion in the USSR and its satellites; problems of Western communications with the USSR; the nature of Communist propaganda and the appeals of Communism in non-Communist countries. Especially for students in the Institute for Sino-Soviet Studies. (Fall—evening.)
- 261 *Seminar: International Communication* (3) Mosé
The process of communicating information and effecting attitude change across cultures by means of mass media. Special emphasis is given to the role of psychocultural factors and the functions of mass communication in the development of transitional societies. Especially for students in the School of Government, Business, and International Affairs. (1964-65 and alternate years: spring—evening.)
- 262 *Behavioral Factors in Social Change* (3) Lippitt
Current research and theory related to the process of social change. Basic principles of planned change will be explored with individual, group, organization, community, and cultural change. Human factors in the change process will be emphasized. Especially for students in the Center for Behavioral Sciences. (Spring—evening.)
- 264 *Sensitivity Training: Human Relations Laboratory Course* (3) Lippitt
A sensitivity learning experience in human relations. The course is built around an unstructured group experience with opportunities for individual feedback, experimentation, and practice. The goal of the course is the development of self insight, situational sensitivity, and diagnostic skills in human relations. Prerequisite: 9 semester hours in psychology or sociology. Especially for students in the Center for Behavioral Sciences. (Fall and spring—evening.)
- 265 *Theory and Design in Human Relations Training* (3) Lippitt
Designed for those interested or involved in conducting human relations training. Theories of learning are reviewed. The laboratory approach to human relations training is explored in depth. Practice in designing, developing training skills, and evaluating training. Prerequisite: Psychology 264 or a human relations laboratory learning experience. Especially for students in the Center for Behavioral Sciences. (1965-66 and alternate years.)

Religion

Professors J. R. Sizoo, R. G. Jones (Chairman)
Assistant Professors H. E. Yelde, Jr., D. D. Wallace, Jr.
Lecturer E. W. Seaman

FIRST GROUP

- 9 *The Old Testament* (3) Jones and Staff
A historical and literary approach to the study of the books of the Old Testament with special consideration given to the development of religious ideas, institutions, and outstanding personalities. (Fall—day and evening; summer 1964.)
- 10 *The New Testament* (3) Jones and Staff
A study of the literature of the New Testament from the standpoint of occasion, purpose, dominant ideas, and permanent values. Special emphasis on the approach, the structure, and the significance of the Gospels and Epistles. (Spring—day and evening.)

59-60 *History of Religions* (3-3)

Wallace, Yeide

First half: primitive and ancient national religions; Confucianism, Taoism, Buddhism, Hinduism, and Shintoism—their historical setting, founders, and development of religious thought and culture. *Second half:* Judaism, Christianity, and Islam—analysis of their origin, evolution, and contemporary status. (Academic year—day and evening; summer 1964.)

SECOND GROUP

103 *The Prophets, Their Times and Their Message* (3)

Yeide

The development of prophetism in the Old Testament; cultural, economic, psychological, and religious factors in the movement; elements of lasting value in the prophetic teaching. A few of the prophets will be selected for particular study. (Fall—day.)

104 *The Life and Thought of Jesus* (3)

Yeide

A comprehensive study of the life and teachings of Jesus as they relate to problems of belief, standards of value, and patterns of life; the significance of the message of Jesus for our own times. (Spring—day.)

105 *The Life and Thought of Paul* (3)

Jones

Greek and Hebrew backgrounds of early Christianity, the Roman world of the first century, religious and social conditions affecting the spread of Christianity, the life and journeys of Paul, Paul's teaching and presentation of the Christian faith, the place of the Pauline epistles in the New Testament. (Summer 1964.)

121 *Problems of Western Religious Thought* (3)

Yeide

The nature of religious truth and experience; the existence, character, and activity of God; the predicament of modern man; the problem of evil and suffering; eternal life; science and religion; the meaning of worship; religious views of history. (Fall—day.)

122 *Christian Ethics and Modern Society* (3)

Yeide

The nature and principles of the Christian life as developed by the Christian community; problems of personal conduct; the application of the Christian standard to family, social, and economic institutions. (Summer 1964.)

131 *History of Christianity to the Reformation* (3)

Wallace and Staff

The rise and expansion of Christianity, the development of Christian thought, the evolution of church organization and worship, the Renaissance and pre-Reformation dissent. (Fall—day.)

132 *History of Modern Christianity* (3)

Wallace and Staff

The origin and development of Protestantism; the Roman Catholic revival; the status of the Eastern churches; doctrines, worship, expansion, church and state, and relations to modern thought and life. (Spring—day.)

135 *History of Judaism to the Talmud* (3)

Seaman

A study of the history and religious thought of the Jewish people from the Maccabean revolt to the compilation of the Talmud. (Fall—day.)

136 *History of Medieval and Modern Judaism* (3)

Seaman

A study of the history and religious thought of the Jewish people from the compilation of the Talmud to the present. (Spring—day.)

141-42 *Religious Education* (3-3)

Principles and practices of religious education in the home, church, and community; basic curricular procedures and special techniques; organization and administration of religious education. (Not offered 1964-65.)

172 *Religion in American Culture* (3)

Wallace

Growth of religious bodies and institutions in American culture, the heritage of religious freedom and diversity, religion and literature, revivalism and education, science

and religious thought, divisions and cooperative movements in religion. (Spring—
evening; summer 1964.)

- 199-200 *Proseminar: Readings for the Religion Major* (3-3) Yeide, Wallace
Readings and group discussions. (Academic year—as arranged.)

THIRD GROUP

- 209-10 *Seminar in Biblical Literature* (3-3) Jones
Study of the main problems of Biblical literary and historical criticism. (Academic
year—evening.)

- 211-12 *Seminar in Biblical Thought* (3-3) Jones
Study of the Biblical interpretation of history and reality and its relation to Biblical
beliefs about God, man, and the world. (Not offered 1964-65.)

- 222 *Seminar in Christian Ethics* (3) Yeide
Study of important tendencies in the ethical reflection of the contemporary Christian
Church, giving special attention to the contributions of the social sciences to that re-
flection. (Spring—as arranged.)

- 231-32 *Seminar in Early and Medieval Christianity* (3-3) Jones, Wallace
An advanced study of the development of Christian thought from primitive beginnings
to the Reformation. (Academic year—evening.)

- 233-34 *Seminar in Modern Religious Thought* (3-3)
Analysis of developments in western religious thought from the 16th century to the
present. (Not offered 1964-65.)

- 241-42 *Seminar in Religious Education* (3-3)
Advanced course dealing with some of the major problems in the practice of religious
education. (Not offered 1964-65.)

- 271 *Seminar in American Religious History to 1830* (3)
Study of religious thought and life during the colonial and early national period.
(Not offered 1964-65.)

- 273 *Seminar in American Religious History since 1830* (3) Wallace
Analysis of modern and contemporary trends in American religious thought. (Fall
—as arranged.)

- 291-92 *Readings and Research* (3-3) The Staff
Investigation of special problems in the history of religion. (Academic year—as
arranged; summer 1964.)

- 299-300 *Thesis* (3-3) The Staff
(Academic year—as arranged; summer 1964.)

RELATED COURSES IN OTHER DEPARTMENTS

- Art 115, *Christian Iconography* (3)
Classical Languages and Literatures 11-12, *First-year Greek* (3-3)
Classical Languages and Literatures 13-14, *Second-year Greek* (3-3)
Classical Languages and Literatures 21-22, *First-year Classical Hebrew* (3-3)
Classical Languages and Literatures 23-24, *Second-year Classical Hebrew*
(3-3)
Sociology 125, *Sociology of Religion* (3)

Romance Languages and Literatures

Professors G. E. McSpadden, L. A. Vignetas, Rafael Supervia, W. G. Clubb* (Chairman)

Associate Professors J. W. Robb, G. E. Mazzeo, J. A. Frey, J. L. Metivier, Jr., James Burks

Assistant Professors Fred Abrams, Elizabeth Neyman, R. M. Riggs

Lecturer Esther Lawton

Instructors G. P. Huvé, Eulogia Llansa, Ruth Weinreb, A. L. Marti

Courses are generally conducted in the language concerned. For General Courses in Romance Languages and Literatures (French, Italian, Portuguese, Spanish), see pages 135-56.

FRENCH

FIRST GROUP

1-2 First-year French (3-3)

The Staff

A year course: credit is not given for the first half until the second half is completed. For beginners. Pronunciation, conversation, grammar, composition, reading of modern French prose. Aural training, oral practice in electronic language workshop. Workshop fee, \$6 a semester. (First half: fall and spring—day and evening; summer 1964. Second half: fall and spring—day and evening; summer 1964.)

2X First-year French (3)

Riggs and Staff

An intensive course to which are assigned entering students with one or more years of high school French whose placement tests show them inadequately prepared for the regular work of French 3. The course meets six hours a week (3 hours of lecture, 2 hours of drill, and 1 hour of workshop) and carries 3 semester hours of credit. The total fee is \$145 (the tuition fee of \$120 plus an additional fee of \$25) plus workshop fee, \$6. (Fall and spring—day.)

3-4 Second-year French: (3-3)

The Staff

A year course: credit is not given for the first half until the second half is completed. Conversation, grammar, composition, reading in modern French prose, introduction to French civilization. Aural training, oral practice in electronic language workshop. Workshop fee, \$6 a semester. Prerequisite: French 1-2, 2X, or two years of high school French. (First half: fall and spring—day and evening; summer 1964. Second half: fall—day; spring—day and evening; summer 1964.)

9-10 French Conversation and Composition (3-3)

The Staff

Prerequisite: French 4 or the equivalent and permission of the instructor. (Academic year—day and evening; summer 1964.)

40 French Readings for Nonmajor Students (3)

Lawton and Staff

Primarily for graduate students preparing for reading examinations. Undergraduates admitted only with specific permission of the instructor. No academic credit for graduate students. (Fall and spring—evening; summer 1964.)

* For additional leave spring semester 1964-65.

* French 3-4 is required, and French 31-32 is recommended as prerequisite to all second group courses.

- 51-52 *Survey of French Literature and Civilization** (2-3) Metivier
The social, artistic, and cultural background of French civilization. Lectures, readings, recitations, and informal discussions. (Academic year—day and evening; summer 1964.)

SECOND GROUP*

- 103 *Problems of Pronunciation and Intonation* (3) Vigneras
Recommended for majors and required for a Bachelor of Arts in Education degree with a teaching field in French. (Fall—day.)
- 109-10 *Advanced French Conversation and Composition* (3-3) Vigneras
Normally diction will receive greater emphasis in the fall semester and style in the spring semester. Prerequisite: French 10 or the equivalent and permission of the instructor. (Academic year—day; summer 1964—French 109 (3).)
- 119-20 *French Literature of the 16th Century* (3-3) Metivier
Prose, poetry, drama, and memoirs of the French Renaissance; Rabelais, Montaigne, Marot, La Vieille, etc. Class analysis of texts, collateral reading. (1965-66 and alternate years.)
- 121-22 *French Literature of the 17th Century* (3-3) Riggs
History, philosophy, criticism, memoirs, letters, eloquence, drama, fiction, poetry. Class analysis of texts; collateral readings. (1964-65 and alternate years; academic year—day.)
- 123-24 *French Literature of the 18th Century* (3-3) Weinreb
History, philosophy, criticism, letters, drama, fiction, poetry, the "salons", the idea of progress, the idea of science. Class analysis of texts, collateral reading, lectures on literature and history. (1965-66 and alternate years.)
- 125-26 *French Literature of the 19th Century* (3-3) Frey
Romanticism and realism; fiction, poetry, drama, criticism. Class analysis of texts, collateral reading, lectures on literature and history. (1964-65 and alternate years; academic year—evening.)
- 127-28 *French Literature of the 20th Century* (3-3) Clubb
Fiction, poetry, drama, criticism. Class analysis of texts, collateral reading, lectures on literature and history. (1965-66 and alternate years.)
- 129-30 *Contemporary French Literature* (3-3) Clubb
Existentialism and surrealism in the novel, poetry, and drama from 1938 to the present. Lectures, discussions, and reports. (Not offered 1964-65.)
- 199-200 *Proseminary Readings for the Major in French Language and Literature* (3-3) Frey
Conferences and group discussions. (Academic year—as arranged.)

THIRD GROUP

- 201 *Doctoral Seminar* (3) The Staff
Introduction to the doctoral program. Methods of research and presentation in the Romance languages and literatures. (Offered 1965-66.)
- 202 *History and Methods of Literary Analysis and Criticism* (3) Frey
Literary criticism from Aristotle to the New Critics. Methods to be demonstrated and applied to selected passages from French literature. Emphasis on technique known as *exégèse de texte*. (Fall—day.)

* French 104 is required, and French 51-52 is recommended, as prerequisite to all second-group courses.

- 212 *Historical French Grammar* (3) Vigneras
The phonology, morphology, and syntax of Old French, and its development from Vulgar Latin. Practical exercises based on texts. Prerequisite: a second- or third-semester course in French literature. Romance 279 *Introduction to Romance Philology and Linguistics* (see General Romance Courses), and an elementary knowledge of Latin. (Spring—day.)
- 213-14 *Old French* (3-3) Vigneras
French literature to the end of the Middle Ages. Prerequisite: a second- or third-semester course in French literature and the permission of the instructor. (Offered 1965-66.)
- 224 *Seminar: the Age of Rabelais* (3)
Humanism and the Reformation in French letters. Rabelais and the context. Poetry to the *Pleïade*. Research projects, papers, reports. (1965-66 and alternate years.)
- 225 *Seminar: the Age of Montaigne* (3)
Montaigne: the man and the development of his thought. Poetry from the *Pleïade* to Malherbe. Drama. Research projects, papers, reports. (1965-66 and alternate years.)
- 227 *Seminar: the Renaissance in Europe* (3) Clubb
The sources and nature of literary trends in Western Europe from Dante to Calderón, and their relationship to French literature. Readings, papers, and discussion. (1964-65 and alternate years: fall—day.)
- 231-32 *Theater in the 17th Century* (2-3) Clubb and Staff
A survey of the development of theatrical arts and the drama. Research papers and reports. Prerequisite: French 121-22 or the equivalent. (1964-65 and alternate years: academic year—day.)
- 244 *Non-dramatic Literature of the 17th Century* (3) Clubb
Rationalism and the revolt against authority expressed in literature. Development of classical doctrine. Discussion of texts and collateral readings. (Offered 1965-66.)
- 241 *The Rationalistic Current in the 18th Century* (3) Weinreb
Bayle, Fontenelle, Montesquieu, Voltaire, Rousseau, as philosophers, dramatists, and critics of their age; their contributions to the intellectual evolution of France and Europe. (Fall—day.)
- 242 *Seminar: the French Novel in the 18th Century* (3) Weinreb
Development of the novel in France from *La Princesse de Cleves* to the French Revolution; themes and techniques. (Spring—day.)
- 244 *Seminar: Diderot and the Encyclopédie* (3) Weinreb
Diderot's contribution to 18th century novel, drama, and aesthetic criticism; the Encyclopédie as embodiment of 18th century thinking. (Offered 1965-66.)
- 250 *Romanticism in France* (3) Frey
The theory and practice of romanticism in France; romantic love, the Napoleonic myth, exoticism, Orientalism, sentimentalism, and religiosity as reflected in new styles of prose and poetry. Romantic criticism. The preparation for realism. (Summer 1964.)
- 251 *Naturalism* (3) Frey
Development of theory and style; influence of history, science, philosophy, and art on literary naturalism. Naturalistic criticism. (Offered 1965-66.)
- 252 *Flaubert and French Realism* (3) Frey
Prose style in the novel from Balzac to Flaubert with emphasis on the latter; literary techniques of realism and its stylistic techniques; the works of Balzac, Stendhal, Mérimée, Gautier, Flaubert, and selected correspondence. (Spring—day.)
- 253 *Seminar: Symbolism in Poetry* (3) Clubb
The origin and nature of symbolism from Mallarmé to Valéry. Class analysis of texts and reports. Prerequisite: French 127-28 or the equivalent. (Fall—day.)

254 Seminar: Victor Hugo (3)

Hugo and the development of the romantic ideal in prose and poetry; Hugo and romantic theater and criticism. Analysis, classification, and criticism of romantic themes and techniques in the works of Hugo; contemporary Hugo criticism. (Spring—day.)

Frey

255 Seminar: Stendhal and Le Beylisme (3)

Stendhal's novels and autobiographical works. Stendhal and Italy. Readings, discussions, and papers. (Offered 1965-66.)

Clubb

264 Seminar: Modern Period (3)

Poetry, prose, drama. (Offered 1965-66.)

Clubb

299-300 Thesis (3-3)

(Academic year—as arranged; summer 1964.)

The Staff

ITALIAN

FIRST GROUP

1 2 First-year Italian (3-3)

A year course: credit is not given for the first half until the second half is completed. For beginners. Pronunciation, conversation, grammar, composition, reading of modern Italian prose. Aural training, oral practice in electronic language workshop. Workshop fee, \$6 a semester. (Academic year—day.)

The Staff

SPANISH

FIRST GROUP

1 2 First-year Spanish (3-3)

A year course: credit is not given for the first half until the second half is completed. For beginners. Pronunciation, conversation, grammar, composition, reading of modern Spanish prose. Aural training, oral practice in electronic language workshop. Workshop fee, \$6 a semester. (First half: fall and spring—day and evening; summer 1964. Second half: fall and spring—day and evening; summer 1964.)

The Staff

2X First-year Spanish (3)

An intensive course to which are assigned entering students with one or more years of high school Spanish whose placement tests show them inadequately prepared for the regular work of Spanish 3. The course meets six hours a week (3 hours of lecture, 2 hours of drill, and 1 hour of workshop) and carries 3 semester hours of credit. The total fee is \$145 (the tuition fee of \$120 plus an additional fee of \$25) plus workshop fee, \$6. (Fall and spring—day.)

Neyman and Staff

3 4 Second-year Spanish* (3-3)

A year course: credit is not given for the first half until the second half is completed. Conversation, grammar, composition, reading of modern Spanish prose, introduction to Hispanic civilization. Aural training, oral practice in electronic language workshop. Workshop fee, \$6 a semester. Prerequisite: Spanish 1-2, 2X, or two years of high school Spanish. (First half: fall and spring—day and evening; summer 1964. Second half: fall—day; spring—day and evening; summer 1964.)

The Staff

9 10 Spanish Conversation and Composition (3-3)

Prerequisite: Spanish 4 or the equivalent and permission of the instructor. Academic year—day and evening; summer 1964.)

The Staff

49 Spanish Readings for Nonmajor Students (3)

Primarily for graduate students preparing for reading examinations. Undergraduates

The Staff

* Spanish 4 is required, and Spanish 4A-4C is recommended, as prerequisites to all second-group courses in Spanish.

admitted only with specific permission of the instructor. No academic credit for graduate students. (Fall and spring—evening.)

- 51-52 *Survey of Spanish Literature and Civilization** (3-3) Supervia
The social, artistic, and cultural background of Spanish civilization. Lectures, readings, recitations, and informal discussion. (1964-65 and alternate years: academic year—day; 1965-66 and alternate years: academic year—evening; summer 1964.)

SECOND GROUP*

- 103 *Problems of Pronunciation and Intonation* (3-3) McSpadden
Descriptive and practical review of Spanish sounds and inflections. Remedial exercises. Recommended for majors and required for the Bachelor of Arts in Education degree with a teaching field in Spanish. (Fall—day.)
- 109-10 *Advanced Spanish Conversation and Composition* (3-3) Mazzeo
Normally diction will receive greater emphasis in the fall semester and style in the spring semester. Prerequisite: Spanish 10 or the equivalent and permission of the instructor. (Academic year—day; summer 1964—Spanish 109 (3).)
- 121-22 *Spanish Literature of the Golden Age* (3-3) Abrams
Lope de Vega, Calderón; the classic drama, the ballad, lyric poetry, prose. Class analysis of texts, collateral reading, lectures on literature and history. (1965-66 and alternate years.)
- 123-24 *Cervantes: Don Quijote* (3-3) McSpadden
Life and works of Cervantes; the *Quijote* and its relationship to other works of the Golden Age. Lectures, discussions, and reports. (1964-65 and alternate years: academic year—evening.)
- 125-26 *Modern Spanish Literature* (3-3) Mazzeo
Prose and poetry of the 18th and 19th centuries. Class analysis of texts, collateral reading, lectures on literature and history. (1964-65 and alternate years: academic year—day.)
- 127-28 *Contemporary Spanish Literature* (3-3) Supervia
Prose and poetry of the 20th century. Class analysis of texts, collateral reading, lectures on literature and history. (1965-66 and alternate years.)
- 129 *The Romantic Drama in Spain* (3) Mazzeo
Class analysis of texts, collateral reading, and lectures on the Spanish Romantic Drama. (Summer 1964 and alternate summers—evening.)
- 151-52 *The Spanish American Novel* (3-3) Robb
Development of the novel in Spanish America. Lectures, collateral reading, and class analysis of texts. (1965-66 and every third year.)
- 155-56 *Spanish-American Literature to 1880* (3-3) Robb
The literature of Spanish America from the colonial period to the latter part of the 19th century. Lectures, collateral reading, reports, and class analysis of important works. (1966-67 and every third year.)
- 157-58 *Spanish-American Literature since 1880* (3-3) Robb
The literature of Spanish America from 1880 to the contemporary period. Lectures, collateral reading, reports, and class analysis of important works. (1964-65 and every third year: academic year—day.)
- 197-98 *Proseminar: Readings for the Major in Spanish-American Literature* (3-3) Robb
Required of all majors. Conferences and group discussions. (Academic year—as arranged.)

* Spanish 304 is required, and Spanish 51-52 is recommended, as prerequisite to all second group courses in Spanish.

199-200 Proseminar: Readings for the Major in Spanish Language and Literature (3-3)

Required of all majors. Conferences and group discussions arranged.

Abrams, Mazzeo

(Academic year—as

THIRD GROUP

201 Doctoral Seminar (3)

Introduction to the doctoral program, advanced study and methodology in the Romance languages and literatures. (Fall—day.)

The Staff

202 Explicación de textos (3)

An analytical introduction to the study of Spanish and Spanish American literature. The method will be demonstrated and practiced on selected passages. (Spring—day.)

Robb

212 Historical Spanish Grammar (3)

Study of phonology, morphology, syntax, and lexicology of Old Spanish, including its development from Vulgar Latin. Practical exercises based on texts. Prerequisite: a second group course in Spanish literature, Romance 279 *Introduction to Romance Philology and Linguistics* (see General Romance Courses), and an elementary knowledge of Latin. (Offered 1965-66.)

McSpadden

214 Old Spanish (3)

Literature and language: *El poema de Mio Cid*, *El Conde Lucanor*, *El libro de Buen Amor*, etc. Prerequisite: a second group course in Spanish literature, Romance 279 *Introduction to Romance Philology and Linguistics* (see General Romance Courses), and an elementary knowledge of Latin. (Spring—day.)

McSpadden

221 Seminar: Works of Cervantes (3)

Problems of composition, interpretation, criticism, literary history, and aesthetics. (Fall—day.)

McSpadden

223 Seminar: Drama of the Golden Age (3)

A study of the Spanish theater from its beginnings to Calderón. Reading and analysis of representative works of Lope, Tirso, Alarcón, Calderón, and the pre-Lopistas. (Fall—day.)

Abrams

224 Seminar: the Renaissance in Spain (3)

Historical and literary aspects of 16th-century Spain. Emphasis on important prose works, mysticism, and lyric poetry. (Offered 1966-67.)

Abrams

226 Seminar: the Novel in the Golden Age (3)

Various manifestations of the novel: chivalric, pastoral, byzantine, with main emphasis on the picaresque. (Summer 1964.)

Abrams

231 Seminar: Spanish Writers of the 18th Century (3)

Lectures and analysis of principal authors and works; relationships with subsequent literary movements. (Offered 1965-66.)

Mazzeo

242 Seminar: Spanish Romanticism (3)

Lectures and analysis of principal authors and works. Collateral readings. (Offered 1965-66.)

Mazzeo

244 Seminar: Naturalism and the Spanish Novel (3)

The development of Naturalism in 19th-century Spain. Analysis of representative works of Pío Baroja, Clarín, Blasco-Ibáñez, and others. (Spring—day.)

Mazzeo

247-49 Seminar: Works of Galdós (3-3)

Methodical and stylistic analysis; relationship of his works to the literary movements of the second half of the 19th century. (Academic year—day.)

Supervia

- 251 *Seminar: Works of Unamuno and Ortega y Gasset* (3) Supervia
A study of their thought; analysis and commentary on the texts. (Offered 1965-66.)
- 253 *Seminar: Modern and Contemporary Spanish American Poets* (3) Robb
Genesis and development of the Modernista Movement in Hispanic America and Spain. Selected Post Modernists. (Fall—day.)
- 261 *Seminar: Spanish-American Essayists* (3) Robb
The Spanish American essay as an artistic form, studied in selected modern essayists such as Rodó, Ricardo Rojas, Vasconcelos, and Arriegas. (Offered 1965-66.)
- 264 *Seminar: Recent Trends in Spanish-American Fiction* (3) Robb
Contemporary *cuentistas* and novelists: J. L. Borges, J. J. Arreola, A. Yáñez, C. Fuentes, E. Godoy, and A. Carpenter. (Spring—day.)
- 266 *Seminar: Alfonso Reyes* (3) Robb
Alfonso Reyes the essayist, poet, and complete humanist as studied in his various prose and poetic works. (Offered 1965-66.)
- 299-300 *Thesis* (3-3) The Staff
(Academic year—as arranged; summer 1964.)

GENERAL COURSES IN ROMANCE LANGUAGES AND LITERATURES

- 270 *Experimental Phonetics* (3) McSpadden
History; problems and methods of analysis in the physiological and acoustical branches of phonetics and later areas; their relationships; their application to the Romance languages, and oral aspects of the Romance literatures. (Offered 1965-66.)
- 272 *Comparative Romance Languages and Literatures I (Italian)* (3) Robb
Intensive study of Italian grammar with reference to French, Spanish, and other Romance languages. (1964-65 and alternate years—fall—day.)
- 273 *Comparative Romance Languages and Literatures II (Italian)* (3) Robb
For candidates for the degree of Doctor of Philosophy. The Italian language and literature from Dante to Gadda. Lectures, discussions, exercises, and readings. Prerequisite: Romance 272 *Comparative Romance Languages and Literatures I* or the equivalent. (1964-65 and alternate years—spring—day.)
- 275-76 *Comparative Romance Languages and Literatures III-IV (Portuguese)* (3-3) Robb
For candidates for the degree of Doctor of Philosophy. Lectures, discussions, exercises, and readings. (Offered 1965-66.)
- 277-78 *Comparative Romance Languages and Literatures V-VI (Portuguese)* (3-3) Robb
For candidates for the degree of Doctor of Philosophy. Portuguese and Brazilian literatures from Camões to the 20th century. (Academic year—day.)
- 279 *Introduction to Romance Philology and Linguistics* (3) McSpadden
Study of principles found in the development of the Romance languages and methods of analysis at the present time. A general course for graduate students in the fields of the Romance languages and literatures. Prerequisite: An elementary knowledge of Latin. This course is normally followed by French 282 or Spanish 282. (Offered 1965-66.)
- 280 *Introduction to Romance Stylistics* (3) Frey
Special emphasis will be placed on examples from French and Spanish literature. (Spring—day.)

283 *Problems of Teaching Romance Languages and Literatures in College* (3) McSpadden

For candidates for the degree of Doctor of Philosophy. Principles and problems of learning and teaching the language and literature. Apprenticeship in college classes and the language laboratory. (Fall—day; summer 1964.)

Russian

See "Slavic Languages and Literatures"

Secretarial Studies*

Coordinator Olive McKay

Lecturers Amil Jackowski, N. A. Smith, R. W. Throckmorton

Associate Dorothy Brewer

1 *Elementary Typewriting* (3) The Staff

Fundamental techniques of typewriting, basic styles of business letters, introduction to tabulation, and preparation of general office forms. Laboratory fee, \$5. (Fall and spring—evening.)

2 *Intermediate Typewriting* (3) The Staff

The business letter and its arrangement, advanced tabulation, manuscript typing, office forms, stencil cutting, and legal documents. Prerequisite: Secretarial Studies 1 or the equivalent; ability to type accurately at 30 words a minute. Laboratory fee, \$5. (Fall—evening; spring—day and evening.)

11 *Elementary Shorthand and Transcription* (3) The Staff

A study of the principles of Gregg shorthand correlated with dictation and transcription. Minimum dictation speed of 60 words a minute attained. Laboratory fee, \$3. (Fall—day and evening.)

12 *Intermediate Shorthand and Transcription* (3) The Staff

Review of the principles of Gregg shorthand. Dictation and transcription on general and specialized business subjects. Minimum dictation speed of 80 words a minute attained. Prerequisite: Secretarial Studies 11 or the equivalent; ability to take dictation at 60 words a minute. Laboratory fee, \$5. (Spring—day and evening.)

15 *Advanced Shorthand, Typewriting, and Transcription* (3) The Staff

Dictation and transcription involving vocabularies in specific businesses. Minimum dictation speed of 100 words a minute attained in dictation. Prerequisite: Secretarial Studies 12 or the equivalent. Laboratory fee, \$5. (Fall—day.)

16 *Secretarial Shorthand, Typewriting, and Transcription* (3) The Staff

Dictation and transcription involving vocabularies used in the real and simulated professions. Minimum dictation speed of 120 words a minute attained. Prerequisite: Secretarial Studies 15 or the equivalent. Laboratory fee, \$5. (Spring—day.)

* This program is administered by the College of General Studies.

- 51 *Business Correspondence* (3) The Staff
Development of the technique of effective communication with reference to business letters and forms. Survey and analysis of current business correspondence. (1964-65 and alternate years; full-day; 1965-66 and alternate years; full-evening.)
- 54 *Secretarial Practice* (3) The Staff
A thorough study of secretarial problems and procedures. Practice in the use of secretarial equipment and supplies. The study of secretarial personality and office relationships. (Spring—day.)

Sino-Soviet Studies

See "Institute for Sino-Soviet Studies"

Slavic Languages and Literatures

Associate Professor Helen Yakobson (Chairman)
Assistant Professors G. A. Oshovsky, Nadine Popelko
Lecturers Kiril Jassenko, M. I. Filipovich Nikaten, A. A. Sivolitz
Instructors Victoria Sandoz, Helen Chevaleraudat

FIRST GROUP

- 1-2 *First-year Russian* (3-3) Yakobson and Staff
A year course; credit is not given for the first half until the second half is completed. A beginners' course in fundamentals of grammar and pronunciation with graded reading, oral drill, and written practice. Listening comprehension and oral practice in electronic language workshop. Workshop fee, \$6 a semester. (First half: fall and spring—day and evening; summer 1964. Second half: fall and spring—day and evening; summer 1964.)
- 3-4 *Second-year Russian* (3-3) Yakobson and Staff
A year course; credit is not given for the first half until the second half is completed. Systematic review of grammar. Study of special problems of Russian morphology and syntax. Oral and written reports on assigned topics. Workshop fee, \$6 a semester. (First half: fall—day and evening; spring—evening. Second half: fall—evening; spring—day and evening.)
- 5 *First-year Russian* (6) Yakobson and Staff
Classroom (5 hours), laboratory (2 hours). An intensive, accelerated beginners' course in fundamentals of grammar and pronunciation with graded reading, oral drill, and written practice. Listening comprehension and oral practice in electronic language workshop. Equivalent in coverage to Russian 1-2. Workshop fee, \$10 (Fall—day.)
- 6 *Second-year Russian* (6) Yakobson and Staff
Classroom (5 hours), laboratory (2 hours). An intensive, accelerated course. Systematic review of grammar. Study of special problems of Russian morphology and syntax. Oral and written reports on assigned topics. Equivalent in coverage to Russian 3-4. Workshop fee, \$10. (Spring—day.)

- 9-10 *Russian Conversation and Composition* (3-3) The Staff
Listening comprehension; oral and written practice. Prerequisite: Russian 3-4 or permission of the instructor. Workshop fee, \$6 a semester. (Academic year—day.)
- 47 *Beginning Russian for Reading Examination Candidates* (0) The Staff
For graduate students with little or no knowledge of Russian who intend to use the language as a research tool. No academic credit. Tuition fee, \$120. (Fall—evening.)
- 49 *Russian Readings for Nonmajor Students* (3) The Staff
Primarily for graduate students preparing for reading examinations. Undergraduates admitted with permission of the instructor. No academic credit for graduate students. Prerequisite: Russian 4 or 47 or the equivalent. (Spring—evening.)
- 91-92 *Introduction to Russian Literature* (3-3)
A survey of Russian literature, in translation, from the earliest periods through the literary masterpieces of the 19th and early 20th centuries given in English. Lecture, recitation, and discussion. (Academic year—evening.)
- 93-94 *Introduction to Slavic (non-Russian) Literature* (3-3) Filipovitch-Nikatch
A survey of non-Russian Slavic literatures, in translation, from the early periods to the present, with emphasis on the contemporary scene. Lecture, recitation, and discussion. (Academic year—evening.)

SECOND GROUP

- 101-2 *Readings in Modern Russian* (3-3) Yakobson and Staff
Representative readings in the social sciences and Soviet periodical literature; study of current political terminology, abbreviations, and Soviet idiom. (Academic year—day.)
- 103-4 *Scientific Russian* (3-3) The Staff (1964-65)
Readings in the major fields of Russian contemporary scientific literature. Recitation and alternate years; academic year—evening.)
- 109-10 *Advanced Russian Conversation and Composition* (3-3) The Staff
Developing proficiency in oral and written expression. (Academic year—day; summer 1964.)
- 125 *Russian Linguistic Structure* (3) Chavchavadze
Descriptive treatment of phonology, morphology, and syntax of contemporary Russian. (Fall—evening.)
- 126 *Comparative Russian-English Linguistic Structure* (3) Chavchavadze
Contrastive treatment of Russian and English phonology, morphology, and syntax, with emphasis on pedagogical applications. (Spring—evening.)
- 141-42 *Russian Literature of the 19th Century* (3-3) Popluiko
Lectures, special reports, class analysis of selected works of 19th century Russian literature—in Russian. (1964-65 and alternate years; academic year—evening.)
- 151-52 *Russian Literature of the 20th Century* (3-3) Popluiko
Lectures, special reports, class analysis of selected works of 20th century Russian literature—in Russian. (1965-66 and alternate years.)
- 161-62 *Russian Culture* (3-3) Olkhovsky
A survey of Russian cultural heritage from the origins of ancient Russia to the present, given in English. Lecture, recitation, discussion, and individual reports on assigned topics. (Academic year—evening; summer 1964.)

165 *Soviet Literature* (3)

Popluiko

A survey of major literary figures, literary movements, and literary styles in translation. Revolution and its impact on literature and on writers. The revival of the psychological novel; short story; contemporary poetry. (Fall-evening.)

179-80 *Advanced Russian for Undergraduate Majors* (1-1)

Yakobson

(Academic year—as arranged.)

Sociology and Anthropology

Professor R. W. Stephens (*Acting Chairman*)

Professorial Lecturer C. L. Perian

Associate Professors R. G. Brown, I. M. Campbell, Joseph Monane (*Research*)

Assistant Professor P. F. Gallagher

Lecturer Cynthia Nathan

SOCIOLOGY

FIRST GROUP

2 *Man, Culture, and Society II** (3)

The Staff

(Formerly Sociology and Anthropology 1)

Development of culture and personality, the impact of groups and institutions on man's social behavior. A survey of the fields within sociology. (Fall and spring—day and evening; summer 1964.)

41 *American Social Problems* (3)

Nathan

(Formerly Sociology and Anthropology 2)

Analysis of major social problems confronting the United States. Factors producing social problems; their nature and treatment. (1965-66 and alternate years.)

SECOND GROUP

120 *Aging in Modern Society* (3)

Nathan

Aging as a biological and sociological phenomenon; development of old age as a social problem with special emphasis on economic dependency and employment; the social role of the aged. (1965-66 and alternate years.)

122 *Fields of Social Work* (3)

Introduction to the nature and scope of social work; the development of social work program; functions of social case work, social group work, and social action. (1965-66 and alternate years.)

124 *Medical Sociology* (3)

Brown

Sociological factors and processes which relate to physical and mental health and disease; analysis of patterned social relationships in the field of health and medicine; the hospital as a social system. (1964-65 and alternate years; spring—day.)

125 *Sociology of Religion* (3)

Yeida

Introduction to the history of the discipline; analysis of the reciprocal impact of secular upon religious and religious upon secular institutions, with special attention to the contemporary American situation. (1964-65 and alternate years; fall—day.)

* Anthropology I and Sociology I combine to make a year course, which is prerequisite to all other study in Sociology and Anthropology.

126 Urban Sociology (3)

The place of the city in the larger society; growth of the city, problems of urban living, group life, personality, urban housing, and city planning. Includes consideration of suburban development. (1965-66 and alternate years.)

129 Race and Minority Groups (3)

Analysis of the relationships between dominant and minority groups in society, particularly in the United States; nature and range of problems; analysis of the phenomenon of prejudice. (1965-66 and alternate years; summer 1964.)

130 Social Stratification: Class and Status (3)

(Formerly Sociology and Anthropology 161)

Nature of class structure patterns of status, prestige relations in American society, differential class behavior, analysis of comparative social structure and social mobility. (1964-65 and alternate years: spring—day.)

131 Social Institutions (3)

Functional analysis of basic social institutions: family, education, religion, economy, and state in the structure of American Society. (1964-65 and alternate years: fall—day.)

132 Courtship and Marriage (3)

Dating and courtship as social processes, reasons for marriage, marriage laws, mate selection, factors in marital adjustment; prediction and counseling. (1965-66 and alternate years; summer 1964.)

Stephens

133 The Family (3)

Historical development of the family as a social institution, parent child relations, family problems, disorganization and divorce, and family reorganization. (1964-65 and alternate years: fall—day.)

Stephens

135 Juvenile Delinquency (3)

Factors producing delinquency, juvenile detention, the juvenile court, training schools, treatment of offenders. (1964-65 and alternate years: spring—day.)

Perian

136 Criminology (3)

Nature and distribution of crime, police and court systems, prisons and reformatories; treatment and prevention of crime. (1964-65 and alternate years: spring—evening.)

Perian

137 Sociology of Law (3)

The law as a social phenomenon and an agency of social control. Sociological analysis of particular problems of legal concepts, doctrine, and institutions. (1965-66 and alternate years.)

140 Military Sociology (3)

The study of the military establishment as one of the important institutions of modern society; an analysis of the distinctive forms of military organization; the social role of the professional military man. (1965-66 and alternate years: summer 1964.)

Monane

144 Mass Communications (3)

The communications process; barriers to communication; structure and function of communication in society; content, control, support, and effects of mass communication. (1964-65 and alternate years: spring—day.)

Brown

146 Industrial Sociology (3)

Sociological analysis of work situations; occupational mobility, development of the labor movement, industrial leadership and morale. (1964-65 and alternate years: fall—evening.)

Brown

147 Sociology of Large Organizations (3)

Sociological analysis of the structural characteristics of large complex organizations; internal accommodations to such organizations; the impact of the large organizational pattern on American social life. (1964-65 and alternate years: spring—day.)

148 Methods of Social Research (3)

Brown

(Formerly Sociology and Anthropology 181)

Analysis of social research techniques and the scientific method; application to social data of the case study, social survey, statistical, sociometric, and experimental methods. (1965-66 and alternate years.)

149 Development of Social Theory (3)

Stephens

Systematic study of the important schools of sociological theory, both European and American developments; and evaluation of the scientific contributions of each school (1965-66 and alternate years.)

THIRD GROUP**221 Seminar: Current Trends in Sociology (3)**

Analysis and evaluation of recent developments in sociology and an appraisal of the role of systematic theory in sociology. (1964-65 and alternate years: fall-day.)

225 Seminar: Small Groups (3)

General characteristics of small groups and their measurement; sociography of groups, evaluation of small group theory and sociometry; other techniques of small group research. (1965-66 and alternate years.)

226 Problems of Underdeveloped Areas (3)

Characteristics and problems of underdeveloped areas; the interrelationship of demographic, economic, social, and cultural factors; measures and techniques to introduce cultural changes. (1964-65 and alternate years: spring-day.)

228 Criminal Behavior: Research and Theory (3)

A reevaluation of theories of criminal and deviant behavior, based on recent research findings; implications for the correction and prevention of criminal behavior. (1964-65 and alternate years: fall-day.)

240 Sociology of Occupations and Professions (3)

Brown

Analysis of occupational roles, occupational structures and changes within them, recruitment and training, adjustment problems at various stages of the career, relationships between stratification systems, life styles, and occupations. (1964-65 and alternate years: spring-day.)

241 Population Problems (3)

Composition of populations, trends in population growth and population pressure, factors producing population movements, effects of migration, population policies: eugenics and birth control. (1964-65 and alternate years: fall-day.)

295-96 Research (arr.)

(Academic year—as arranged.)

The Staff

299-300 Thesis (3-3)

(Academic year—as arranged; summer 1964.)

The Staff

ANTHROPOLOGY**FIRST GROUP****1 Man, Culture, and Society I* (3)**

The Staff

(Formerly Sociology and Anthropology 51)

The physical evaluation of man and the origins and development of culture, including a survey of the topic divisions of the field. (Fall and spring—day and evening; summer 1964.)

* Anthropology 1 and Sociology 2 combine to make a year course, which is prerequisite to all other courses in Sociology and Anthropology.

SECOND GROUP

- 152 *Physical Anthropology* (3) Stewart, Angel
A study of human variation past and present, seen as a product of physical and cultural evolution. (Spring—evening.)
- 153 *Psychological Anthropology* (3) Gallagher
The relevance of psychoanalytic and learning theories to the cross-cultural study of personality. Cultural determinants of personality formation and mental health. (Fall—day; summer 1964.)
- 155 *Primitive Religion* (3) Campbell
Conceptions of the supernatural in nonliterate societies. An examination of religious beliefs and practices; the interrelatedness of religion, magic, and philosophy. (1964-65 and alternate years: spring—day.)
- 161 *Language and Culture* (3) Gallagher
(Formerly Sociology and Anthropology 143)
The structure and semantics of systems of human communication, linguistic change, the influence of language on world view. (Fall—day.)
- 172 *Native People of the New World* (3) Gallagher
A survey of representative Indian groups of the Americas from primitive bands to high civilizations, stressing the patterned nature of diverse cultural responses to universal problems of human existence. (Spring—day.)
- 173 *Cultures of the Pacific* (3) Campbell
A study of the culture, history, and ways of the life of the native peoples of Melanesia, Micronesia, and Polynesia. (Spring—day.)
- 182 *New World Archeology* (3) Gallagher
A survey of pre-Columbian culture history, from man's entry into the Americas during the Pleistocene Ice Age until the time of the first European contacts. (Spring—day.)
- 183 *Old World Archeology* (3) Campbell
A survey of the culture of history of man exclusive of the Americas, from the earliest human cultures to the advanced civilizations and their secondary centers. (Fall—day.)
- 192 *Anthropological Theory* (3) Campbell
Analysis of the theoretical postulates and assumptions underlying the development of modern cultural anthropology. (Spring—evening.)
- 193 *Anthropological Methods* (3) Campbell
Approaches to library and field research in linguistics, archeology, and ethnography; conceptual bases and bias in the delineation of problems, in the selection, analysis and organization of data, and in the preparation of the final report. (1964-65 and alternate years: fall—evening.)

THIRD GROUP

- 261 *Cultural Origins of the New World* (3) Campbell
(1965-66 and alternate years.)
- 262 *Applied Anthropology* (3) Gallagher
(Formerly Sociology and Anthropology 155)
The use of anthropological methods and techniques in such specific fields as government, business, law, and medicine. (1965-66 and alternate years.)

263 Culture Contact and Change (3)

Western impact on non-Western cultures. The workings and the processes of social change as variant cultures and ethical systems interact. (1964-65 and alternate years: fall—as arranged.)

265 Cultural Ecology (3)

Campbell

A cross-cultural examination of the relationship of technology to the natural world. (1965-66 and alternate years.)

267 Primitive Economics (3)

Callaghan

The comparative study of preindustrial systems of production, distribution, and consumption. An inquiry into the applicability of Western laws of economic analysis to non-Western societies. (1964-65 and alternate years: fall—day.)

285-86 Research in Anthropology (arr.)

The Staff

(Academic year—as arranged.)

289-90 Thesis (3-3)

The Staff

(Academic year—as arranged; summer 1964.)

Spanish

See "Romance Languages and Literatures"

Speech

Professors L. P. Leggett (Chairman), C. W. Pettit (Director of Speech Clinic), G. F. Herliem, Jr. (Director of Forensics), E. L. Stevens
 Professorial Lecturers Ze'ida Fichandler, Edna Monsies
 Associate Professors Lee Belski, Frances Henry
 Associate Professorial Lecturers W. J. Eisen, S. L. Bortinsky, Edwin Shatts
 Assistant Professors K. R. Sanders*, R. A. Homayovsky
 Lecturers Edith Surrey, A. A. Nilles, Florence Lowmiles, E. I. Shook
 Associates Joan Regnell, Lois Richards, Ruth Cox

FIRST GROUP

A Speech Clinic

Pettit, Homayovsky

Individual or group lessons, without academic credit, for such speech difficulties as lisp, cleft palate, articulatory problems, and stuttering. Fee: for individual lesson, \$1; for group lesson, \$4. (Academic year—as arranged; summer 1964.)

B.C. American Speech for Foreign Students (3-3)

Belski

Class limited to foreign-born students. Instruction in the formation of the sounds of spoken English, with emphasis on rhythm and intonation. The International Phonetic Alphabet is used. Recording fee, \$5 a semester. (Academic year—day and evening; summer 1964.)

* On leave of absence 1964-65.

- 1 *Effective Speaking* (3) The Staff
Preparation and delivery of extemporaneous speeches, developing confidence and poise, body and voice control; selecting and organizing material. Recording fee, \$2. (Fall and spring—day and evening; summer 1964.)
- 2 *Persuasive Speaking* (3) Henigan, Sanders
A continuation of Speech 1, which is prerequisite, with emphasis on speech composition and elementary principles of persuasion. (Fall—day; spring—day and evening.)
- 11 *Voice and Diction* (3) Leggette and Staff
Developing ease, naturalness, and clarity in the speaking voice. Analysis of individual voices through recordings. Phonetic approach to the study of the sounds of English, the standards of speech. Class instruction in the problems of rate, volume, pitch, and quality. Recording fee, \$4. (Fall and spring—day and evening; summer 1964.)
- 32 *Oral Reading* (3) Leggette and Staff
Reading to others, theory and practice in the problems of interpreting the printed page. Prerequisite: Speech 11. Recording fee, \$2. (Fall—day; spring—day and evening; summer 1964.)

SECOND GROUP

- 101 *Phonetics* (3) Honeygosky
The International Phonetic Alphabet and its applications to the student's own speech improvement; also its application to such fields as theater, public speaking, speech correction, radio, television, and foreign languages. Prerequisite: Speech 11. Recording fee, \$4. (Fall—evening.)
- 102 *Oral Interpretation of Literature* (3) Leggette
Theory and practice in the problems of communicating meaning and emotion. Selections for study include poetry, prose, and drama. Prerequisite: Speech 32. Recording fee, \$2. (Spring—day.)
- 111 *Effective Speech Communication* (3) Elsen
The tools and principles of effective speech communication, including practice in the organization, delivery, and the evaluation of presentations commonly encountered by professional personnel. Not open to speech majors. (Not offered 1964-65.)
- 121 *Group Discussion and Conference Leadership* (3) Stevens
The process of thinking and problem solving in committees and small groups, and the methods of leading discussions and conferences. Prerequisite: 6 hours of speech or the permission of the instructor. (Fall—day; spring—evening; summer 1964.)
- 126 *Public Discussion and Debate* (3) Henigan
Principles and types of public discussion and debate; practice in argumentative speaking on questions of current interest. Prerequisite: 6 hours of speech or the permission of the instructor. (Spring—day.)
- 127-28 *Advanced Debate Practice* (1-1) Henigan
Admission by permission of the instructor, after one semester of satisfactory participation in the intercollegiate debate program. This course may be repeated for a total of 4 semester hours. (Academic year—as arranged.)
- 133-34 *Radio and TV Broadcasting* (3-3) Shook
A study of the development of the radio and TV industries, station organization and management, equipment, production techniques; practice in the preparation and performance of radio programs. Recording fee, \$5 a semester. (Academic year—evening.)
- 135-36 *Radio Workshop* (1-1) The Staff
Practical work in campus radio station. (Academic year—as arranged.)

- 141 *Public Speaking: Advanced Forms* (3) Henigan
The preparation and presentation of speeches for formal occasions with emphasis on the psychology of the audience. Prerequisite: 6 semester hours of speech. (Fall—day.)
- 145 *Speech Criticism* (3) Henigan
A study of rhetorical theory with application to the criticism of representative American and British oratory. Admission by permission of the instructor. (Not offered 1964-65.)
- 153 *Acting* (3) Leggette
Study and practice in the fundamentals of acting technique. Prerequisite: Speech 32. Laboratory fee, \$5. (Fall—evening.)
- 154 *Play Production* (3) Leggette
Fundamentals of play production. Under the supervision of the instructor, students prepare one-act plays for presentation. Laboratory fee, \$5. (Spring—evening.)
- 155-56 *Play Production Practice* (1-1) The Staff
Practical work in theater. (Academic year—as arranged.)
- 157 *Workshop in Producing Shakespeare* (4) Chamberlain*
Participation as a company member in the Shakespeare Summer Festival production at the outdoor Sylvan Theatre on the Washington Monument grounds. Class work in the interpretation of Shakespeare culminating in a show case production. Hours arranged with Company rehearsals and performances. Registration limited. Application must be made by May 15 to the Dean of the Summer Sessions.
- 166 *History of the Theater* (3) Nilles
A general survey of the rise of the theater, the Classical, Medieval, Renaissance, later English and Continental, and the Modern theater. (Spring—evening.)
- 169 *Creative Dramatics* (3) Lowndes
A study of creative dramatics and its use as a learning tool. (Fall—evening.)
- 170 *Children's Theater* (3) Lowndes
Theory and practice in creating and producing plays for children. (Spring—evening.)
- 171 *Introduction to Speech Disorders* (3) Pettit
A survey of the disorders of speech, including symptomatology, testing, causation, and principles of therapy. (Fall—evening.)
- 173-74 *Speech Therapy* (3-3) Homyosky
Clinical techniques and procedures involved in the correction of the disorders of speech. Prerequisite for Speech 173: Speech 171 or concurrent registration. Prerequisite for Speech 174: Speech 182 or concurrent registration and permission of the instructor. (Academic year—evening.)
- 176 *Speech, Hearing, and Language Development* (3) Henry
Study of normal speech from vegetative processes to articulation, normal development of auditory function and the emergence of language. (Spring—evening.)
- 177-78 *Clinical Practice in Speech Therapy* (1-1) The Staff
Supervised case work in remedial speech—the University Speech Clinic, Children's Hospital, District of Columbia Crippled Children's Society, and Public School system. Weekly meetings to discuss therapeutic techniques for the common speech problems. This course may be repeated for a total of 6 semester hours. Prerequisite: Speech 101, 171, 173, and permission of the instructor. (Academic year—as arranged; summer 1964.)
- 182 *Hearing Problems and the Testing of Hearing* (3) Shatts
A study of the field of audiology with emphasis on the testing of hearing. (Fall—evening.)

* Appointment for summer 1964.

- 183-84 *Clinical Practice in Hearing Therapy* (1-1) The Staff
 Supervised case work with persons handicapped with hearing losses—the University Speech Clinic, the Washington Hearing Society, and Children's Hospital. Prerequisite: Speech 182 and permission of the instructor. (Academic year—as arranged; summer 1964.)

THIRD GROUP

- 251 *Rehearsal and Performance* (2 to 4) Arena Stage Staff
 A course putting into practice the principles and techniques of acting through participation in play rehearsals and performances at the Arena Stage. Admission by audition or interview. (Fall and spring—as arranged.)
- 254 *Directing Problems* (2 to 4) Arena Stage Staff
 Observation and participation in solving the problems involved in directing plays. Admission by interview. (Fall and spring—as arranged.)
- 255 *Techniques of Staging* (2 to 4) Arena Stage Staff
 Application of theory and principles of scene design, costuming, lighting, make-up, and related stage techniques. Admission by interview. (Fall and spring—as arranged.)
- 263 *Theater Management* (2 to 4) Arena Stage Staff
 Theory and practice in the psychology of handling the public: promotion, box office and house management. Admission by interview. (Fall and spring—as arranged.)
- 264 *Producing Problems* (2 to 4) Arena Stage Staff
 Problems involved in producing community and professional theater. Admission by interview. (Fall and spring—as arranged.)
- 279 *Anatomy and Physiology of Speech and Hearing* (3) Henry
 Study of the gross structure of articulation, phonation, respiration, and hearing. (Fall—evening.)
- 280 *Neurophysiology of Communication* (3) Henry
 Study of peripheral and central nervous systems and their involvement in speech, hearing, and language. (Spring—evening.)
- 283 *Advanced Audiology* (3) Shutts
 Advanced problems and testing techniques in audiology. (Spring—evening.)
- 284 *Dynamic Phonetics* (3) Henry
 Techniques and instrumentation for examining speech. (Fall—day.)
- 285 *Childhood Aphasia* (4) Monsees
 Designed to acquaint speech therapists and teachers of exceptional children with the McCloskey Association Method of rehabilitation; background lectures dealing with neurological, psychological, and psychiatric aspects of language disorders in children; current theories and practices in therapy. Observation and clinical practice with classes of aphasic children at the Children's Hospital School for Aphasic Children. Prerequisite: undergraduate degree in speech and hearing, special education, or allied fields. (Summer 1964.)
- 286 *Differential Diagnostics* (3) Pettit and Staff
 Etiology for clinical observation; techniques in history taking, patient counselling, and management. (Not offered 1964-65.)
- 287-88 *Seminar in Communicology* (2-3) Pettit and Staff
 Extensive study of specific problems in aphasia, cleft palate, mental retardation, stuttering, and other speech disorders. (Academic year—evening; summer 1964—Speech 287 (3).)
- 294 *Research in Dramatic Art* (arr.) The Staff
 (Spring—as arranged.)

- 295-96 *Research in Speech and Hearing* (arr.) The Staff
(Academic year—as arranged; summer 1964—Speech 295 (3).)
- 299-300 *Thesis* (3-3) The Staff
(Academic year—as arranged; summer 1964—Speech 299 (3).)

RELATED COURSES IN OTHER DEPARTMENTS

- Classical Languages and Literatures 71-72, *Greek and Roman Backgrounds in Literature* (3-3)
- English 125, *Introduction to English Linguistics* (3)
- English 135-36, *Shakespeare* (3-3)
- English 175-76, *American Drama* (3-3)
- English 183-84, *The English Drama* (3-3)
- English 235-36, *Studies in Shakespeare and His Contemporaries* (3-3)
- Education 134, *Student Teaching in Secondary Schools* (6 to 9)
- Education 137, *Teaching Speech* (2 to 4)
- Psychology 115, *Psychology of Language and Communication* (3)

Statistics

- Professors E. H. Johnson, H. F. Bright, Solomon Kullback (*Chairman*), Minoru Sakaguchi (*Visiting*)
- Professorial Lecturers Samuel Greenhouse, Seymour Geisser, Morton Kupperman, Ira Cisin
- Associate Professorial Lecturers Arnold Heyl, W. M. Wolman
- Assistant Professor R. E. Thomas
- Lecturers S. J. Armore, Fred Frishman, Selig Starr

FIRST GROUP*

- 51 *Introduction to Business and Economic Statistics* (3) The Staff
Lecture (2 hours), laboratory (2 hours). Survey of elementary principles and procedures for presenting, analyzing, and interpreting statistical data; consideration of characteristic values; measures of variability, sampling processes, index numbers, time series analysis, and sample correlation. Prerequisite: one entrance unit in algebra. Laboratory fee, \$9. (Fall and spring—day and evening; summer 1964.)
- 52 *Mathematics of Finance* (3) The Staff
Lecture (3 hours). Interest and discount, annuities, valuation of stocks and bonds, sinking funds, amortization, valuation of depletable assets, depreciation. Prerequisite: one entrance unit in algebra. (Fall and spring—evening.)

* Of the first-group courses, Statistics 51, 53, and 54 are related in their subject matter, and credit hours for only two of the three may be applied toward a degree. Statistics 52 lies outside of this group, and may be taken for degree credit in combination with any one of the other three.

- 53 *Introduction to Statistics in Psychology and Education* (3) The Staff
Lecture (2 hours), laboratory (2 hours). Sources of data, tabulation, charts and graphs, averages, dispersion, quartiles and percentiles, raw scores and derived scores, frequency distributions, reliability and validity of tests, normal curve, correlation, elementary sampling, and an introduction to estimation and tests of hypotheses. Prerequisite: one entrance unit in algebra. Laboratory fee, \$9. (Fall and spring—day and evening; summer 1964.)

- 91 *Principles of Statistical Methods** (3) The Staff
Lecture (2 hours), laboratory (2 hours). Variates and attributes, averages and dispersion, frequency distributions and their characteristics, regression and correlation, statistical decision processes. Prerequisite: one entrance unit in algebra. Laboratory fee, \$9. (Fall—evening; spring—day; summer 1964.)

SECOND GROUP

- 104 *Statistics in Psychology and Education* (3) Cisin
Lecture (2 hours), laboratory (2 hours). Introductory study of statistical techniques necessary for application of statistics in research problems in psychology and education. Laboratory fee, \$9. (Fall—Saturday morning; summer 1964.)

- 105 *Statistics in Psychology and Education* (3) Cisin
Lecture (2 hours), laboratory (2 hours). Advanced study of statistical techniques necessary for an application of statistics in research problems. Analysis of variance, correlation techniques, chi square applications, and sampling theory. Prerequisite: Statistics 53 or 104. Laboratory fee, \$9. (Spring—Saturday morning.)

- 106 *Factor Analysis* (3)
Matrix theory as applied to factor analysis, introduction to the concepts of factor analysis and their utility in various phases of research. Prerequisite: Statistics 105 or the equivalent. Laboratory fee, \$9. (1965-66 and alternate years.)

- 107 *Statistics for Engineers* (3) The Staff
Simple probability models, discrete and continuous distributions, sampling, hypothesis testing and estimation, nonparametric tests. Emphasis on engineering applications. Prerequisite: differential and integral calculus. (Fall and spring—evening.)

- 110 *Quality Control Techniques* (3) The Staff
Applications of probability and distribution theory to industrial control problems; use of quality and control charts; acceptance sampling plans; estimation of lot and process characteristics. Prerequisite: Statistics 51 or permission of instructor. (1964-65 and alternate years: spring—evening.)

- 111 *Business and Economic Statistics I* (3) Johnson
Statistical processes as related to the problems of business and economic research with emphasis on decision making under conditions of uncertainty. Topics include averages, dispersion, analysis of variance, correlation, quality control, and index numbers. Prerequisite: Statistics 51 or permission of instructor. (Fall—day and evening.)

- 112 *Business and Economic Statistics II (A)* Johnson
Specific problems of business and economics with statistics as a tool of analysis. Introduction to principles and use of linear programming, game theory and queuing theory techniques. Study of various economic relationships, including demand, supply, cost and price functions. Prerequisite: Statistics 111 or equivalent. (Spring—day and evening.)

- 117 *Analysis of Variance I* (3) Thomas
Lecture (2 hours), laboratory (2 hours). The analysis of variance to segregate factors producing significant variation; a method to estimate experimental error, multiple classifications, Latin Square, Greek Latin Square, factorials; an introduction to model theory. Prerequisite: Statistics 91. Laboratory fee, \$9. (Fall—evening.)

* Statistics 91 is for Statistics majors, for students in engineering and in the biological and physical sciences.

- 118 *Correlation and the Chi-square Test I* (3) Thomas
Lecture (2 hours), laboratory (2 hours). Regression and correlation theory: simple, partial, and multiple; nonparametric methods; analysis of covariance; contingency table analysis; tests of goodness of fit. Prerequisite: Statistics 91. Laboratory fee, \$9. (Spring-evening; summer 1964.)
- 122 *Forecasting Principles and Techniques* (3) Johnson
Survey and appraisal of techniques for measuring the state of business conditions and an examination of current indicators. Study of procedures for estimating future values: budget requirements, price levels, or level of general business activity. Prerequisite: Statistics 51 or the equivalent. (1965-66 and alternate years.)
- 123 *Introduction to Econometrics* (3) Johnson
A basic quantitative approach to fundamental problems in economic theory involving the use of statistical processes, simple model construction, and probability considerations. Prerequisite: elementary course in Economics and Statistics. (1965-66 and alternate years.)
- 155 *Introduction to Mathematical Probability* (3) The Staff
Probability distributions, Bayes' theorem and postulate, Bernoulli's theorem and its experimental verification, mathematical expectation, laws of large numbers. Prerequisite: permission of instructor. (Fall-day; spring-evening.)
- 157-58 *Mathematical Statistics* (3-3) Kupperman
Distribution theory, sampling theory, estimation, hypothesis testing, confidence methods, regression analysis, experimental design. Prerequisite: differential and integral calculus. (Academic year-day and evening.)
- 187 *Theory of Sampling* (3) Bright
Problems of sampling and sample design. Admission by permission of the instructor. (1965-66 and alternate years.)
- 188 *Nonparametric Statistical Inference* (3) Bright
Statistical inference when the form of the underlying distribution is unknown, sign tests, rank order statistics, theory of runs, nonparametric discriminant analysis. (1965-66 and alternate years.)
- 189-90 *Mathematical Probability and Applications* (3-3) Starr
Combinatorial analysis, conditional probability and stochastic independence, probability distributions, laws of large numbers, recurrent events, random walks, Markov chains, simple time-dependent stochastic processes. Prerequisite: Statistics 155 or permission of instructor. (Academic year-evening.)
- 193 *Statistical Mathematics** (3) The Staff
Problems in statistics with the development of real variable theory necessary for their solution. Prerequisite: differential and integral calculus. (Spring-evening.)
- 194 *Statistical Mathematics** (3) The Staff
Problems in statistics with the development of complex variable theory necessary for their solution. Prerequisite: differential and integral calculus. (Fall-evening.)
- 195-96 *Reading and Research in Statistics* (arr.) The Staff
(Academic year-as arranged.)
- 197 *Digital Computer Programming with Applications* (3) Bright
Lecture (2 hours), laboratory (2 hours). The use of the digital computer in statistical and other computational work. Machine language, SPS and FORTRAN programming. Writing, debugging, and running programs on the digital computer, using the IBM 1620 in the University Computing Center. Prerequisite: permission of the instructor. Laboratory fee, \$20. (Fall and spring-day and evening; summer 1964.)

* Mathematics 124 and Statistics 193 and 194, or the equivalent, are prerequisite to all third-year courses.

- 103-4 Comparative Vertebrate Anatomy (3-3)** Leach
Lecture (1 hour), laboratory (4 hours). Lectures on the organ systems of the vertebrates, laboratory dissections of types. Material fee, \$11 a semester. (1964-65: academic year—day and evening; 1965-66: academic year—day.)
- 108 Organic Evolution* (3)** Munson
Theories of organic evolution and present ideas on the principle lines of development in the plant and animal kingdoms; review of the contributions to an understanding of the mechanisms involved in this process. (1964-65: spring—evening; 1965-66: spring—day.)
- 115-16 Cytology* (3-3)**
Lecture (1 hour), laboratory (4 hours). The morphological and physiochemical properties of plant and animal cells and their components. Preparation of material for study. Prerequisite: one year of chemistry and two years of biological sciences. Material fee, \$11 a semester. (Academic year—day.)
- 127 Genetics* (3)** Stewart
A lecture course in which the general principles are illustrated with specific examples of inheritance in plants and animals, including man. (Fall—evening; 1964 and alternate summers.)
- 139-40 Cell Physiology* (3-3)** Shropshire, Weintraub
(Zoology 139-40 replaces former 140)
The fundamental physiology of protoplasm. Prerequisite: Chemistry 12. Students who received credit for Zoology 140 prior to 1964-65 may register for the second semester of Zoology 139-40. (Academic year—evening; 1965 and alternate summers.)
- 145 Introduction to Vertebrate Embryology (3)** Hansen
Lecture (1 hour), laboratory (4 hours). Origin and early development of the individual, formation of organ systems. Emphasis on the frog, chick, and pig, with reference to the human embryo. Material fee, \$11. (1964-65 and alternate years: fall and spring—day; 1965-66 and alternate years: fall and spring—day and evening; summer 1964.)
- 148 Histology (3)** Desmond
Lecture (1 hour), laboratory (4 hours). Introduction to the microscopical anatomy of normal tissues and organs. Material fee, \$11. (1964-65 and alternate years: fall and spring—day; 1965-66 and alternate years: fall and spring—day and evening.)
- 152 Protozoa (3)** Mortensen
Lecture (1 hour), laboratory (4 hours). Introduction to the protozoa: classification, life histories, and physiology, with special emphasis on free living types. Material fee, \$8. (1965-66 and alternate years: spring—evening.)
- 155 Parasitology (3)** Kates
Lecture (1 hour), laboratory (4 hours). An introduction to the study of animal parasitology, with a survey of parasitic types from the protozoa through arthropods. Material fee, \$11. (1965-66 and alternate years: fall—evening.)
- 157 Comparative Endocrinology (3)** Leach
A study of the endocrine systems of the vertebrate classes. Differences and similarities between endocrine mechanisms of fish, amphibians, reptiles, birds, and mammals will be included to illustrate broad trends of evolution in endocrine systems. (Fall—day.)
- 161 Entomology (3)** Munson
Lecture (1 hour), laboratory (4 hours). A study of the elementary morphology, physiology, and ecology of insects, with an introduction to the taxonomy of the more important groups. Material fee, \$8. (1965-66 and alternate years: fall—evening.)

* An interdepartmental course offered by the departments of Botany and Zoology. Students may register in either department.

- 162 Insect Physiology (3)** Munson
Lectures and laboratory work on the physiology of insects. Admission by permission of the instructor. Material fee, \$11. (1965-66 and alternate years: spring-evening.)
- 171-72 Special Problems (3-3)** The Staff
Written approval of the instructor is required. Material fee, \$11 a semester. (Academic year—as arranged.)
- 199-200 Proseminar (3-3)** The Staff
Designed to correlate and supplement the work of Zoology majors. (Academic year—day and evening.)

THIRD GROUP

- 201-2 Seminar: Cytology* (3-3)**
A study of the current literature in experimental cytology. (Academic year—evening.)
- 204 Seminar in Invertebrate Zoology (3)** Mortensen
A study of original publications on hormones of invertebrate animals. (1964-65 and alternate years: spring-evening.)
- 214 Advanced Invertebrate Zoology (3)** Mortensen
Lectures and laboratory work on problems in invertebrate physiology. Prerequisite: Zoology 101-2 or the equivalent. Material fee, \$8. (Not offered 1964-65.)
- 222 Seminar: Vertebrate Reproduction (3)** Leach
Lectures and class reports on the endocrinology of reproduction. The primary emphasis will be placed on recent literature and unsolved problems pertaining to this subject. (1965-66 and alternate years: spring-evening.)
- 247-48 Morphogenesis (3-3)** Hansen
Lectures and class reports on experimental morphology. Prerequisite: Zoology 103-4 or the equivalent. (1964-65 and alternate years—evening.)
- 251 Seminar in Vertebrate Zoology (3)** Desmond
A study of current publications in the field of histophysiology. (1965-66 and alternate years: fall-evening.)
- 295-96 Research (arr.)** The Staff
Investigation of special problems. (Academic year—as arranged; summer 1964.)
- 299-300 Thesis (3-3)** The Staff
(Academic year—as arranged; summer 1964.)

* An interdepartmental course offered by the departments of Botany and Zoology. Students may register in either department.

THE GEORGE WASHINGTON UNIVERSITY

Academic programs leading to degrees are offered in the following colleges and schools:

Columbian College of Arts and Sciences: Associate in Arts (A.A.), Associate in Science (A.S.), Bachelor of Arts (A.B.), Bachelor of Science (B.S.), Bachelor of Science in Medical Technology (B.S. in Med. Tech.), Master of Arts (A.M.), Master of Fine Arts (M.F.A.), and Master of Science (M.S.)

Graduate Council: Doctor of Philosophy (Ph.D.)

School of Medicine: Doctor of Medicine (M.D.)

National Law Center:

Law School: Bachelor of Laws (LL.B.)

Graduate School of Public Law: Master of Laws (LL.M.), Master of Comparative Law (M.Comp.L.), and Doctor of Juridical Science (S.J.D.)

School of Engineering and Applied Science: Engineering Technologist Certificate (E.T.C.), Bachelor of Science (B.S.), Master of Science (M.S.), Master of Engineering Administration (M.E.A.), and Doctor of Science (D.Sc.)

School of Education: Bachelor of Arts in Education (A.B. in Ed.), Bachelor of Science in Physical Education (B.S. in P.E.), Master of Arts in Education (A.M. in Ed.), Education Specialist (Ed.S.), and Doctor of Education (Ed.D.)

School of Government, Business, and International Affairs: Bachelor of Arts in Government (A.B. in Govt.), Bachelor of Business Administration (B.B.A.), Master of Arts in Government (A.M. in Govt.), Master of Business Administration (M.B.A.), Master of Public Administration (M.P.A.), Doctor of Business Administration (D.B.A.), and Doctor of Public Administration (D.P.A.)

College of General Studies: Associate in Arts (A.A.), Associate in Science (A.S.), Associate in Secretarial Administration (A.Sec. Adm.), Bachelor of Arts (A.B.), Bachelor of Business Administration (B.B.A.), Bachelor of Science in Cartography (B.S. in Cart.), Master of Science in Business Administration (M.S. in B.A.), Master of Science in Financial Management (M.S. in Fin. Mgt.), Master of Science in Governmental Administration (M.S. in Govt. Adm.), Master of Science in International Affairs (M.S. in I.A.), Master of Science in Personnel Administration (M.S. in Per. Adm.), and Master of Science in Public Administration (M.S. in P.A.)

ANNUAL ISSUES OF THE UNIVERSITY BULLETIN

Requests for the following publications should be addressed as indicated.

College of General Studies.....Dean of the College of General Studies

Columbian College of Arts and Sciences.....Director of Admissions

Division of University Students.....Director of Admissions

Fellowships, Scholarships, Prizes, Financial Aid.....Director, Student Financial Aid

General Catalogue of the University.....Director of Admissions

Graduate Council.....Dean of the Graduate Council

Law School and Graduate School of Public Law.....Dean of the Law

School or Dean of the Graduate School of Public Law

School of Education.....Director of Admissions

School of Engineering and Applied Science.....Dean of the School

School of Government, Business, and International Affairs.....Director of Admissions

School of Medicine.....Admissions Office, School of Medicine

Summer Sessions.....Dean of the Summer Sessions

Schedule of Classes: Fall and Spring Semesters.....Registrar

Schedule of Classes: Summer Sessions.....Dean of the Summer Sessions

Jessie Bigelow Martin, A.B., *Editor of Academic Publications*

THE GEORGE WASHINGTON UNIVERSITY, 1821

COLUMBIAN COLLEGE OF ARTS AND SCIENCES
THE GRADUATE COUNCIL, 1893

THE NATIONAL LAW CENTER, 1959
THE LAW SCHOOL, 1865
THE GRADUATE SCHOOL OF PUBLIC LAW, 1959

THE SCHOOL OF ENGINEERING AND APPLIED SCIENCE, 1914
THE SCHOOL OF BUSINESS ADMINISTRATION, 1916
THE SCHOOL OF INTERNATIONAL AFFAIRS, 1928

THE SUMMER SESSIONS, 1916
THE UNIVERSITY HOSPITAL, 1898

The
George
Washington
University

Bulletin

The School of Education
1964-1965



WASHINGTON, D.C. 20008

CORRESPONDENCE DIRECTORY

Detailed information may be obtained by addressing inquiries as indicated below. For any information not included here, please write to the Director of Admissions, The George Washington University, Washington, D. C. 20057.

Information concerning courses of instruction and the programs of the several colleges and schools will be found in separate issues of the University Bulletin, which are listed on the inside back cover.

Admission	Director of Admissions, Building C
Law School	Dean of The Law School
School of Medicine	1339 H Street NW.
Air Science (ROTC)	Director of Air Science, Chapin Hall
Alumni Association	Alumni Office, Bacon Hall
Medical Alumni Association	1335 H Street NW.
Foreign Students	Director of Foreign Student Affairs, Building T
Graduate Study	
In Arts and Sciences	
Master's degrees	Dean of Columbian College of Arts and Sciences
Doctor of Philosophy	Dean of The Graduate Council
In Education	Dean of The School of Education
In Engineering or Applied Science	Dean of The School of Engineering and Applied Science
In Law	Dean of The Graduate School of Public Law
In Accounting, Business Administration, Business and Economic Statistics, Economic Policy, Health Care Administration, International Affairs, Personnel Administration, Public Administration, Public Affairs.....	Dean of The School of Government, Business, and International Affairs
Housing	
Men	Dean of Men
Women	Dean of Women
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Student Employment	Student Placement Office, 2114 G Street NW.
Summer Sessions	Dean of the Summer Sessions, Building T
Transcripts of Records	Registrar, Building C
Veterans Education	Director of Veterans Education

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The
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Bulletin

THE SCHOOL OF EDUCATION
1964-65

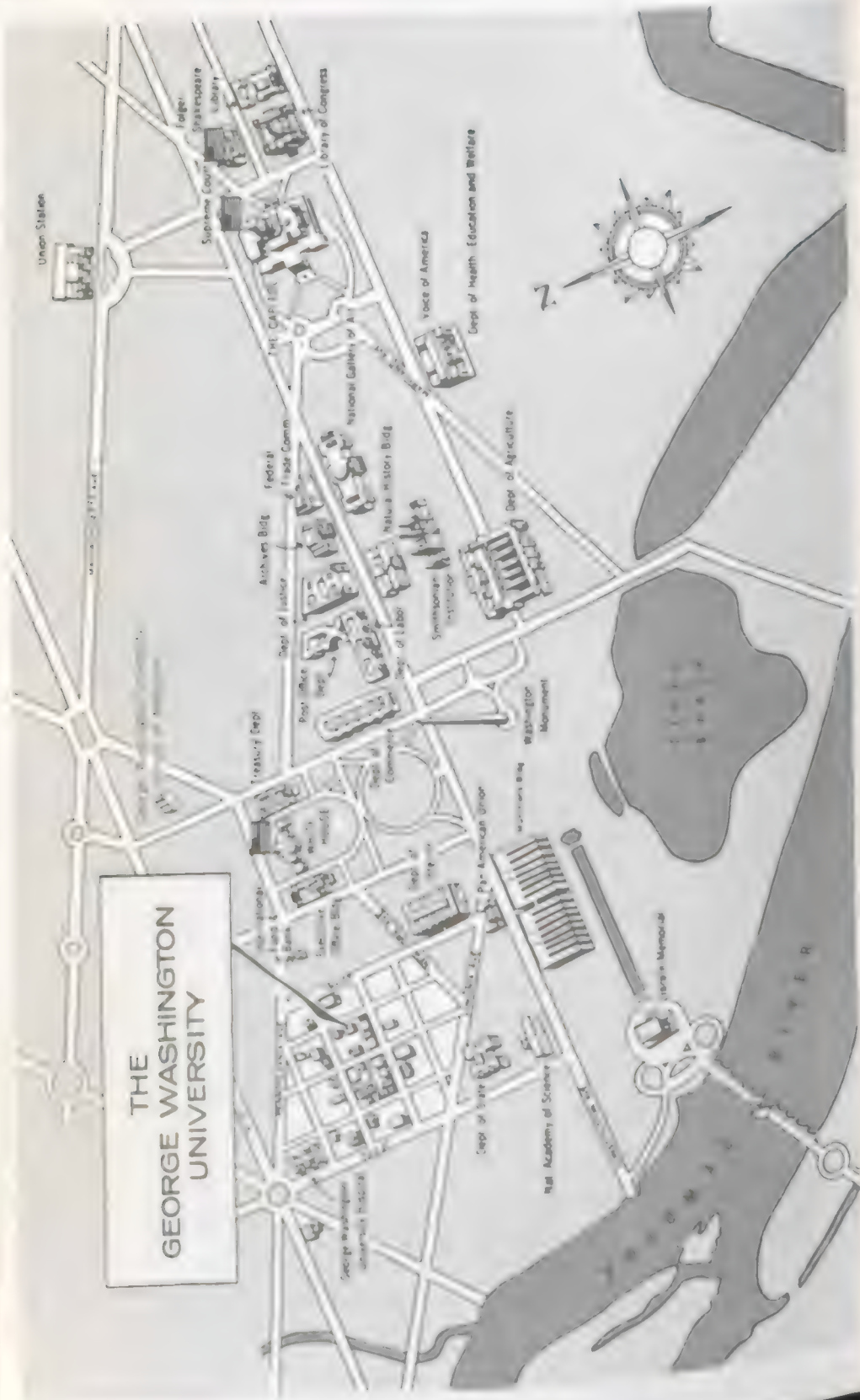
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JUNE 1964

NUMBER 14

WASHINGTON, D. C. 20006

THE GEORGE WASHINGTON UNIVERSITY



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1964							1965													
July							January							July						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
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12	13	14	15	16	17	18	10	11	12	13	14	15	16	11	12	13	14	15	16	17
19	20	21	22	23	24	25	17	18	19	20	21	22	23	18	19	20	21	22	23	24
26	27	28	29	30	31	24	25	26	27	28	29	30	25	26	27	28	29	30	31
....	31
August							February							August						
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September							March							September						
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13	14	15	16	17	18	19	14	15	16	17	18	19	20	12	13	14	15	16	17	18
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October							April							October						
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December							June							December						
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27	28	29	30	31	27	28	29	30	26	27	28	29	30	31

The Calendar 1964-65

FALL SEMESTER:

Orientation Assembly: all new students	Sept 11	Fri
Curriculum Assemblies:		
New full-time students	Sept 11	Fri
New part-time students	Sept 14	Mon
Placement tests	Sept 14-15	Mon-Tues
Advising	Sept 14-16	Mon-Wed
Registration	Sept 17-19*	Thurs-Sat
Application for Feb graduation due in Registrar's Office		
Classes begin	Sept 21	Mon
Subjects of Master's theses of Feb candidates due	Oct 2	Fri
Dissertation subjects of June Ed.D. candidates due	Oct 2	Fri
National Teacher Examinations	Oct 10	Sat
Application for Nov Ed.D. comprehensive examinations due	Oct 17	Sat
General Education activities plans due from A.B. in Ed. Feb entrants	Oct 19	Sat
Graduate Studies Committee meets	Oct 30	Fri
Veterans Day (holiday)	Nov 11	Wed
Ed.D. comprehensive examinations	Nov 14	Sat
Back-spring recess	Nov 26-28	Thurs-Sat
Ed.D. dissertations of Feb candidates due	Dec 1	Tues
Ed.D. and A.M. in Ed. Jan comprehensive examination applications due	Dec 5	Sat
National Teacher Examinations	Dec 12	Sat
Christmas recess	Dec 23-Jan 2	Wed-Sat
Classes resume	Jan 4	Mon
Master's theses of Feb candidates due	Jan 4	Mon
Ed.D. and A.M. in Ed. comprehensive examinations	Jan 9	Sat
Last day of fall-semester classes	Jan 13	Wed
Graduate Studies Committee meets	Jan 15	Fri
Examination period	Jan 15-23	Fri-Sat
Immigration (holiday)	Jan 20	Wed

* Thursday and Friday from 12:00 to 1:00 pm. Saturday from 10:00 am to 1:00 pm.

SPRING SEMESTER:

Advising: new students	Jan 18-27	Mon-Wed
Registration	Jan 28-30*	Thurs-Sat
Application for June Graduation due in Registrar's Office		
Spring-semester classes begin	Feb 1	Mon
Subjects of Master's theses of June candidates due	Feb 5	Fri
Winter Convocation (holiday)	Feb 22	Mon
General Education activities plans due from A.B. in Ed. June entrants	March 1	Mon
National Teacher Examinations	March 20	Sat
Dissertation subjects of Feb 1966 Ed.D. candidates due	March 27	Sat
Ed.D. and A.M. in Ed. April comprehensive examination applications due	March 27	Sat
Application for 1965-66 scholarships due	April 1	Thurs
Ed.D. dissertations of June candidates due	April 1	Thurs
Spring recess	April 14-20	Wed-Tues
Ed.D. and A.M. in Ed. comprehensive examinations	April 24	Sat
Master's theses of June candidates due	April 30	Fri
Graduate Studies Committee meets	May 7	Fri
Last day of spring-semester classes	May 19	Wed
Examination period	May 24-29	Mon-Sat
Memorial Day (holiday)	May 31	Mon
Baccalaureate Service	June 6	Sun
Commencement	June 6	Sun

SUMMER SESSIONS:†

REGISTRATION FOR FALL SEMESTER

1965-66	Sept 16-18	Thurs-Sat
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* Thursday and Friday from 12:00 to 8:00 p.m.; Saturday from 10:30 a.m. to 1:00 p.m.

† Dates will be announced in the Calendar of the 1965 Summer Sessions Catalogue, published in December 1964.

The School of Education

INTRODUCTION

It is the purpose of the School of Education to prepare teachers, counselors, and administrators for the higher ranges of educational service and to offer opportunities to teachers of experience to extend their education. The School includes the departments of Education, Physical Education, and Home Economics. It offers both graduate and undergraduate work. Other departments of the University provide general education and subject-matter courses needed for a well-balanced program of teacher education. In addition to programs of study leading to the degrees, the School offers nondegree programs for certification and affiliates with the Washington School of Psychiatry in course offerings.

Special curricula are provided for liberal arts graduates, housewives, and retired military personnel who wish to prepare for teaching. The School also provides a wide range of courses of interest to emergency teachers who wish to qualify for teaching certificates and teachers who wish to renew licenses.

Laboratory and clinical facilities are provided by the University Reading Center and Speech Clinic. In cooperation with public and private schools and a wide variety of social agencies, ample opportunity for field experience is provided.

The schedule of courses is arranged to meet the convenience of both full-time and part-time students. By attending evening, Saturday, and summer classes, teachers in the schools of the metropolitan Washington area and others within commuting range may complete all the requirements for a degree without giving up their positions.

HISTORICAL DEVELOPMENT

The University began offering professional courses for teachers in 1904-5 and in 1907 it established a Division of Education. In 1909, the Division of Education became the Teachers College which, in its early years, was concerned largely with teacher preparation on the undergraduate level.

In 1928, the Teachers College became the School of Education and greater provision was made for advanced study. Since that time the graduate enrollment has steadily increased with the result that today the School has a considerably larger number of graduate than undergraduate students.

ADVANTAGES OF STUDY IN THE NATION'S CAPITAL

Washington is rich in the resources needed by teachers, counselors, and administrators to supplement classroom instruction. In addition to the library facilities of the University, the Library of Congress; the Library of the Department of Health, Education, and Welfare; and many special collections provide unexcelled oppor-

tunities for reading and research. The operation of all branches of the National Government may be observed. Among the art galleries are the National Gallery of Art, the Corcoran Gallery of Art, the Freer Art Gallery, Phillips Memorial Gallery, and the National Museum. The music calendar of Washington is a full one, and includes concerts by the National Symphony Orchestra, Philadelphia Orchestra, and the Boston Symphony Orchestra. Those interested in science find many resources for study at the National Museum, the National Zoological Park, the United States Botanic Garden, and the **Aquarium of the Fish and Wildlife Service**, Department of the Interior. Students have unique opportunities to become acquainted with the work of the Office of Education, the National Education Association, the American Council on Education and many other national organizations with headquarters in Washington.

ACADEMIC STATUS

The George Washington University is accredited by the regional accrediting agency, the Middle States Association of Colleges and Secondary Schools. This is important to students who wish to transfer credits from one institution to another.

The University is on the approved list of the American Association of University Women and is a member of the College Entrance Examination Board.

The School of Education is accredited by the National Council for Accreditation of Teacher Education, is a member of the American Association of Colleges for Teacher Education, and was a charter member of the National Association of Colleges and Departments of Education prior to the merger of that association with others to form the American Association of Colleges for Teacher Education.

EDUCATION FOR TEACHING

Programs of study in education for teaching are based upon the assumption that every teacher should have a broad general education, adequate mastery of the content of instruction, and professional competence.

The relative emphasis placed upon each of these aspects of the total education for teaching varies in accordance with the purposes of each program. For instance, elementary school teachers, since they teach all subjects, require content preparation of greater breadth and less specialization than secondary school teachers.

It is the view of the School of Education that an acceptable minimum education for teaching requires not less than four years of full-time study or the equivalent part-time study. For superior preparation teachers are urged to plan for five years of full-time study or the equivalent part-time study.

The student may choose any one of the following three plans to achieve superior educational preparation for teaching:

1. Upon receiving the Bachelor's degree, he may take a teaching position and, after acquiring some professional experience, return to the School for graduate study leading to the Master's degree. This plan enables students with Bachelor's degrees to start earning immediately and, by teaching experience, to illuminate graduate study which will follow. However, by delaying acquisition of the Master's degree the student cannot command the higher salary usually associated with this degree and may prejudice his opportunity for promotion.
2. The student may choose to pursue full-time graduate study leading to the

Master's degree immediately after receiving the Bachelor's degree. This plan is of advantage to students who wish to defer the decision to seek a Master's degree until completion of the undergraduate program and to students transferring from other institutions, whose transferred credits fit more readily into this plan than into the five-year plan discussed below. Both this program and the five-year program enable the student to command a higher beginning salary and be considered for early promotion.

3. For those whose professional aims are established at the beginning of the junior year, the School offers a five-year integrated program of study leading to the Bachelor's and Master's degrees conferred simultaneously. This program permits careful planning from the outset to meet the demands of the teaching position for which the student is preparing; it permits adequate mastery of the content of instruction in two teaching fields; and advances the professional sequence of courses to the fourth and fifth years, thus providing a more adequate academic preparation. Students are advised to choose the five-year program, if possible.

The first two years of all programs of study are administered by Columbia College of Arts and Sciences of the University. During these two college years the student is encouraged to follow the curriculum designed to prepare him for the program of studies he wishes to pursue later in the School of Education. Students who have followed other curricula may be admitted to the School of Education with deficiencies which they must make up before graduation. Members of the Faculty of the School of Education serve as advisers to students enrolled in Columbia College of Arts and Sciences curricula leading to degree programs in the School of Education. At each registration students must have their programs approved by their advisers. They are also urged to seek counsel in the budgeting of time for the inclusion of nonacademic student activities and of campus cultural opportunities for the development of a well-rounded personality.

The Bachelor's Degrees

BACHELOR OF SCIENCE IN PHYSICAL EDUCATION*

BACHELOR OF SCIENCE IN PHYSICAL EDUCATION FOR MEN

There are three curricula leading to this degree. The curriculum in Physical Education with an academic minor is designed to prepare students for teaching positions in smaller schools where it is necessary to teach an academic subject in addition to physical education. The curriculum in Physical and Health Education prepares for the teaching of physical education in the larger schools. The curriculum in Physical Education and Recreation is planned for those who wish to be prepared to direct programs of recreation in addition to the teaching of physical education.

* Physical Education may also be chosen as a minor teaching field by candidates for the degree of Bachelor of Arts in Education. See page 12.

PREREQUISITE

The following two-year curriculum offered in the lower division of Columbian College of Arts and Sciences, is required for admission to the School of Education as a candidate for the degree of Bachelor of Science in Physical Education for Men.

	Semester Hours
English	English 1 or 1X, 2..... 6
Science	Biology 1-2 (freshman year)..... 8
	Chemistry 3-4 (sophomore year)..... 8
Social Studies	History 71-72; Political Science 9-10..... 6
	Anthropology 1 and Sociology 2..... 6
Major Prerequisites	Physical Education 41, 43-44, 47; Speech 1 or 11 (freshman year)..... 10
	Physical Education 45-46, 49, 50, 59-60; Psychology 1, 22 (sophomore year)..... 20
Total.....	64

CURRICULUM REQUIREMENTS

The minimum requirements for this degree are 66 semester hours, distributed as follows:

CURRICULUM IN PHYSICAL EDUCATION WITH AN ACADEMIC MINOR

Junior Year

	Semester Hours
Education 108	Human Development, Learning, and Teaching..... 3
Education 123	Society and the School..... 3
Physical Education 105.....	Adapted Physical Education and Physical Examinations..... 3
Physical Education 107.....	Teaching Recreational Dance..... 1
Physical Education 113-14.....	Practice in Teaching Physical Education Activities..... 4
Physical Education 121.....	School and Community Health Programs..... 3
Physical Education 122.....	Methods and Materials for Health Education..... 3
Physical Education 158.....	Safety Education: Care of and Responsibility for Athletic Injuries..... 3
Physiology 115	Introduction to Human Physiology..... 4
Academic Teaching Field.....	..... 3
Elective .....	..... 3
Total.....	33

Senior Year

Education 131	Principles and Methods of Secondary School Teaching..... 3
Education 134	Student Teaching in Secondary Schools..... 6-9
Physical Education 103.....	History and Principles of Physical Education..... 3
Physical Education 115-16.....	Teaching Team Sports in Secondary Schools..... 4
Physical Education 131.....	Tests and Measurements in Physical Education..... 3
Physical Education 138.....	Organization and Administration of Physical Education..... 8-11
Academic Teaching Field.....	..... 3
Total.....	33

CURRICULUM IN PHYSICAL AND HEALTH EDUCATION

Junior Year

	Semester Hours
Education 108 Human Development, Learning, and Teaching.....	3
Education 123 Society and the School.....	3
Physical Education 107..... Teaching Recreational Dance.....	1
Physical Education 113-14..... Practice in Teaching Physical Education.....	4
Physical Education 121..... School and Community Health Programs.....	3
Physical Education 122..... Methods and Materials for Health Education.....	3
Physical Education 158..... Safety Education: Care of and Responsibility for Ath- letic Injuries.....	3
Physiology 115 Introduction to Human Physiology.....	3
Elective	10
Total.....	33

Senior Year

Education 131 Principles and Methods of Secondary School Teaching.....	3
Education 134 Student Teaching in Secondary Schools.....	6-9
Physical Education 103..... History and Principles of Physical Education.....	3
Physical Education 105..... Adapted Physical Education and Physical Examina- tions.....	3
Physical Education 115-16..... Teaching Team Sports in Secondary Schools.....	4
Physical Education 131..... Tests and Measurements in Physical Education.....	3
Physical Education 138..... Organization and Administration of Physical Education.....	3
Elective	5-8
Total.....	33

CURRICULUM IN PHYSICAL EDUCATION AND RECREATION

Junior Year

Education 108 Human Development, Learning, and Teaching.....	3
Education 123 Society and the School.....	3
Physical Education 48 Introduction to Recreation.....	2
Physical Education 107..... Teaching Recreational Dance.....	1
Physical Education 113-14..... Practice in Teaching Physical Education.....	4
Physical Education 121..... School and Community Health Programs.....	3
Physical Education 131..... Camp Leadership.....	1
Physical Education 151-52..... Recreational Leadership Activities.....	6
Physical Education 153..... Safety Education: Care of and Responsibility for Ath- letic Injuries.....	3
Elective	7
Total.....	33

Senior Year

Education 131 Principles and Methods of Secondary School Teaching.....	3
Education 134 Student Teaching in Secondary Schools.....	6-9
Physical Education 103..... History and Principles of Physical Education.....	3
Physical Education 122..... Methods and Materials for Health Education.....	3
Physical Education 131..... Tests and Measurements in Physical Education.....	3
Physical Education 138..... Organization and Administration of Physical Education.....	3
Physical Education 161..... Community Organization for Recreation.....	3
Physical Education 162..... Administration of Community Recreation Programs.....	3
Elective	3-6
Total.....	33

BACHELOR OF SCIENCE IN PHYSICAL EDUCATION FOR WOMEN

The Physical Education major curriculum is designed to prepare students for teaching in elementary and secondary school programs of physical education.

Within this curriculum there is opportunity for specialization in dance, corrective physical education, health education, and recreation.

The student wishing to prepare to teach another subject in addition to physical education may do so by using her elective hours to work toward a minor teaching field. Relevant work completed in Columbian College of Arts and Sciences may be counted.

PREREQUISITE

The following two-year curriculum, offered in the lower division of Columbian College of Arts and Sciences, prepares for the Bachelor of Science in Physical Education curriculum in the School of Education.

	Semester Hours
English	6
English 1 or 1X, 2.....	6
English 51-52, 71-72, or 91-92.....	6
Psychology	8
Psychology 1, 22.....	8
Science	8
Biology 1-2	6
Chemistry 3-4	4-6
Social Studies	6
History 39-40, 71-72; Political Science 9-10; or Anthropology 1 and Sociology 2.....	6
Major Prerequisites	4-6
Physical Education 43-44.....	6-10
Physical Education 49, 50.....	
Physical Education 51-52.....	
Academic Electives	64
Total.....	

Junior Year

Education 108	Human Development, Learning, and Teaching.....	3
Education 123	Society and the School.....	3
Physical Education 105-6.....	Adapted Physical Education and Physical Examinations.....	6
Physical Education 107.....	Teaching Recreational Dance.....	1
Physical Education 111-12.....	Teaching Physical Education Activities.....	4
Physical Education 117.....	Teaching Modern Dance.....	1
Physical Education 118.....	Dance Production.....	1
Physical Education 121.....	School and Community Health Programs.....	3
Physical Education 122.....	Methods and Materials for Health Education.....	3
Physical Education 132.....	Camp Leadership.....	3
Physiology 115	Introduction to Human Physiology.....	5
Elective or minor teaching field.....		34
Total.....		

Senior Year

Education 131	Principles and Methods of Secondary School Teaching.....	3
Education 134	Student Teaching in Secondary Schools.....	6-9
Physical Education 101.....	Physical Education in the Elementary School.....	3
Physical Education 103.....	History and Principles of Physical Education.....	3
Physical Education 113.....	Practice in Teaching Physical Education Activities.....	3
Physical Education 131.....	Tests and Measurements in Physical Education.....	3
Physical Education 132.....	Organization and Administration of Physical Education.....	5-8
Elective or minor teaching field.....		32
Total.....		

BACHELOR OF ARTS IN EDUCATION

The objective of programs leading to the degree of Bachelor of Arts in Education is to provide (1) general educational backgrounds; (2) functional command of ideas, concepts, knowledge, and skills in one or more teaching fields; (3) mastery of basic professional information and skills adequate for the beginning teacher; and (4) development of attitudes needed for success in teaching. Since the contents of teaching fields differ in scope and complexity, some programs are longer than others in terms of semester hours. None require less than 126 semester hours of satisfactory work, exclusive of required Physical Education.

Normally, from 60 to 64 semester hours of the total requirement are completed in Columbian College of Arts and Sciences of the University or in an equivalent institution elsewhere.

GENERAL EDUCATION

The general educational backgrounds needed by prospective teachers are obtained through: (1) precollege education, (2) college courses, (3) work experience, (4) leadership activities, (5) participation in student campus activities, and (6) utilization of off-campus cultural opportunities.

College course requirements of the pre-Education curriculum.—Course requirements depend in part upon the senior high school credits presented for college admission. They are as follows:

ENGLISH

	Semester Hours
English 1 or 1X, 2: English Composition.....	6
Before students are registered in English 1, they are tested in the minimum essentials of vocabulary, spelling, grammar, standard usage, and writing skill. Those students who show marked superiority may, upon passing further tests, be exempted from one or both semesters of the English Composition course; those who are inadequately prepared are assigned to English 1X. English 1 or 1X is a prerequisite to all other courses in English.	
One of the following survey courses in literature.....	6
English 51-52: Introduction to English Literature	
English 71-72: Introduction to American Literature	
English 91-92: Introduction to European Literature	

FOREIGN LANGUAGES

French, German, Latin, Russian, or Spanish.....	12
A student offering for admission four acceptable high school units of a single foreign language, or the equivalent, is not required to take any foreign language. If he offers three units, he must complete the second semester of the second-year college course in the same language. If he offers two units, he must complete the entire second-year college course in the same language. If he offers one unit, he must complete the second semester of the first-year college course and the second-year course in the same language.	

PHYSICAL EDUCATION

Physical Education 1-2 and 11-12.....	4
A student may be exempted from this requirement if registered for less than three courses or regularly employed during the day.	

SCIENCE

Semester
Hours

Three semesters (two in biological science and one in physical science or vice versa) to supplement senior high school courses in these fields and chosen from the following.....

9-12

Biology 1-2: Introductory Biology

Chemistry 3-4: Fundamentals of Physical Sciences

Chemistry 11-12: General Chemistry

Geology 1-2: Introductory Geology (or 1: Introductory Geology; and 12: Rocks, Fossils, and Minerals)

Physics 1-2: General Physics (or former 11, 12: Introductory Physics)

(A student offering for admission two or more acceptable senior high school units in the above areas of science may be exempted from one semester of this requirement.)

MATHEMATICS

Two semesters to supplement senior high school courses chosen from the following.....

6

Mathematics 3: College Algebra

Mathematics 6: Plane Trigonometry

Mathematics 9: General Mathematics I

Mathematics 10: General Mathematics II

SOCIAL STUDIES

History 71-72: The Development of the Civilization of the United States or Political Science 9-10.....

6

6

Another Social Science chosen from the following courses.....

Economics 1-2: Principles of Economics

Geography 51, 52: Introduction to Geography; World Regions

History 39-40: The Development of European Civilization in Its World Context

History 71-72: The Development of the Civilization of the United States

Political Science 9-10: Government of the United States

Religion 59-60: History of Religion

Anthropology 1: Man, Culture, and Society I

Sociology 2: Man, Culture, and Society II

(A student offering for admission two or more acceptable senior high school units in the Social Studies may be exempted from this requirement.)

OTHER COURSES

Psychology 1: General Psychology.....

3

Psychology 22: Introduction to Educational Psychology.....

3

Speech 1: Effective Speaking (or 11: Voice and Diction, if the Department so advises).....

3

Students who demonstrate marked superiority in Speech may be exempted from this requirement. Such exemption is granted only on the recommendation of the Department of Speech.

ACADEMIC ELECTIVES

Electives may be selected in lieu of the various exemptions.....

64-67

Minimum required credits.....

Work experience, leadership activities, participation in student campus activities, and the utilization of off-campus cultural opportunities.—Obviously, these cannot be proscribed. Nevertheless, they constitute an important part of the general educational background of prospective teachers. In conference with a staff member of the Department of Education assigned as his general adviser, the student is expected to plan adequate experiences in these areas. Not later than one month after matriculation in the School of Education the student must file in the Office of the Dean a statement of such plans approved by his adviser. He must also keep his adviser informed concerning the fulfillment of his plans and to this end include in plans filed, scheduled conferences with his adviser.

Success of the student in enriching his general educational background by these means will be taken into consideration at the end of the first semester of the junior year when the faculty will review the qualifications of candidates to determine any who are not of sufficient promise as prospective teachers to warrant continuation of their candidacies. Success in these activities will also be considered when the list of candidates is again reviewed early in the last semester of the senior year immediately after the results of the National Teacher Examinations are available. In estimating the success of the student in this connection, more weight will be given to evidence of initiative, eagerness to make the most of each experience, balance, and quality of experience than to the number of different experiences.

Although the student is not required to establish a program of nonacademic activities until he becomes a degree candidate in the School of Education, he is advised to do so as soon as he enters the University. To this end, he should consult the pre-Education adviser soon after entering. Whatever is accomplished in this connection while in Columbian College of Arts and Sciences will reduce the obligations of the student after admission to the School of Education.

TEACHING-FIELD PREPARATION

Teaching-field preparation depends upon the kind of teaching position for which the student is preparing. Those planning to teach in elementary schools need a degree of competency in several fields. Those preparing to teach in junior or senior high schools, as a rule, must demonstrate competency in a major teaching field and a minor teaching field. With the approval of the student's adviser, preparation in a minor teaching field may be omitted in order to permit additional study in the major teaching field. Ordinarily, students preparing to teach in evening schools for adults are required to prove competency in only one teaching field.

The student should begin teaching-field preparation while in the lower division of Columbian College of Arts and Sciences and should make provision for it in planning his program of studies.

Teaching-field requirements include satisfactory completion of prescribed academic courses in one or more fields, a satisfactory score on the special field examination of the National Teacher Examinations,* and satisfactory completion of the prescribed special methods courses.

* Special field examinations of the National Teacher Examinations are available in elementary education, early childhood education, biology and general science, English language and literature, mathematics, mathematics, chemistry, physics, and general science, social studies, physical education, business education, music education, home economics, and art education.

Students preparing to teach biology or geography take the special field examination in social studies.

Students preparing to teach in fields in which special field examinations are not available (language and speech) must obtain a satisfactory score on a special field examination given by the instructor in the special methods course involved.

Prescribed academic courses vary in number in accordance with the scope and complexity of the teaching field and the license requirements of the various states. Minimum academic course requirements for each major teaching field are listed on succeeding pages. Minor teaching-field requirements are somewhat less than those of a major field. They are determined in conference with an adviser. Students preparing to teach on the elementary level are advised to use free electives to increase their mastery of content in an academic field or an area of specialization, e.g.—Physical Education, etc.

The prescribed course in special methods is concerned primarily with methods of initiating, guiding, and evaluating learning experiences dealing with the content of the teaching field. It attempts to bring to the student specific suggestions drawn from the accumulated experience of successful teachers. However, in addition, the course reviews the teaching field content currently in use in schools and the examination at the end of the course provides the final test of competency in the teaching field.

PREScribed COURSES IN THE VARIOUS TEACHING FIELDS

	Art	Semester Hours
Art 1: Art Appreciation		3
Art 31-32: Survey of Western Art		6
or Art 71-72: Introduction to the Arts in America		9
Nine semester hours from the following.....		
Art 101: Greek and Roman Architecture		
or Art 102: Greek and Roman Sculpture		
Art 103: Medieval Art		
Art 104: Renaissance Art in Italy I		
or Art 105: Renaissance Art in Italy II		
Art 106: Renaissance Art in the North		
Art 109: Nineteenth Century Art in Europe		
Art 110: Contemporary Art		
Art 112: Art of Egypt and the Ancient Orient		
Art 113: Baroque Art in Italy		
or Art 114: Baroque Art in the North		
Art 120: Art of China and Japan		
Art 143: Folk Arts in America		
Art 148: Primitive Art		
Twenty-four semester hours from the following.....		
Art 31-32: Basic Design*		
Art 45-46: Advertising Design I		
Art 41-42: Drawing I		
Art 51-52: Ceramics I		
Art 53-54: Introduction to Graphic Techniques		
Art 65-66: Painting I		
Art 81-82: Sculpture I		
Art 121-22: Advanced Design		
Art 123-24: Design Workshop		
Art 125-26: Painting II		
Art 127-28: Painting III		
Art 131-32: Ceramics II		
Art 143-44: Sculpture II		
Art 151-52: Ceramics III		
Art 157-58: Graphics		
Art 159-60: Drawing II—Figure and Anatomy		
Art 161: Workshop in Ceramics		

* Prerequisite to all work in studio practice.

	Semester Hours
Art 165-66: Painting, Drawing, and Composition	
Art 175-76: Design II	
Art 179-80: Sculpture II	
Art 193-94: Advertising Design II	
Total.....	42

Biology

Biology 1-2*: Introductory Biology	8
Botany or Zoology 108*: Organic Evolution	
or Botany or Zoology 127*: Genetics	3
Botany: (Advanced courses as approved by the adviser)	6
Chemistry 11-12: General Chemistry	8
Physiology 115: Introduction to Human Physiology	3
Physics 1-2: General Physics (or former 11, 12: Introductory Physics)	8-6
Zoology 101-2: Invertebrate Zoology	6
Zoology 103-4: Comparative Vertebrate Anatomy	6
Total.....	46-43

Business Education

Accounting 1: Introductory Accounting	3
Economics 1-2: Principles of Economics	6
Secretarial Studies 51: Business Correspondence	3
Additional courses, as prescribed, in one of the following groups:	

Group 1—Secretarial Studies†

Secretarial Studies 2: Intermediate Typewriting	3
Secretarial Studies 12: Intermediate Shorthand and Transcription	3
Secretarial Studies 15: Advanced Shorthand, Typewriting, and Transcription	3
Secretarial Studies 54: Secretarial Practice	3
Additional courses from the following, as approved by the adviser.....	6
Accounting 2: Introductory Accounting	
Business Administration 101: Introduction to Business	
Business Administration 109: Office Management	
Business Administration 141: Basic Marketing Management	
Business Administration 161: Commercial Law: Contracts, Sales, Agency, and Bailments	
Economics 121: Money and Banking	
Statistics 52: Mathematics of Finance	

Total..... 30

Group 2—Bookkeeping, Business Arithmetic, and Business Law

Accounting 2: Introductory Accounting	3
Accounting 111: Financial Statement Analysis	
or Accounting 121: Intermediate Accounting	3
Business Administration 101: Introduction to Business	3
Business Administration 102: Fundamentals of Management	3
Business Administration 161: Commercial Law: Contracts, Sales, Agency, and Bailments	3
Business Administration 162: Commercial Law: Negotiable Instruments, Property, Mortgages	3
Statistics 52: Mathematics of Finance	3

* An interdepartmental course offered by the departments of Botany and Zoology. The student may register in either department.

† Courses inadequately prepared for Secretarial Studies 2 or 12 may be required to take Secretarial Studies 1 or 11. In such cases, with the approval of the adviser, credit earned for Secretarial Studies 1 or 11 may be substituted for a tracking field elective.

‡ Not required for the minor teaching field.

*Three semester hours from the following, as approved by the adviser.....

- Business Administration 121: Risk Management
Business Administration 131: Business Finance
Business Administration 138: Investments
Economics 121: Money and Banking

36

Total.....

Group 3—Distributive Education

- Business Administration 141: Basic Marketing Management.....
Business Administration 142: Marketing Management Problems.....
Business Administration 145: Sales Management.....

3

3

3

12

*Twelve semester hours from the following, as approved by the adviser.....

- Business Administration 147: Advertising
Business Administration 150: Procurement and Materials Management
Business Administration 158: Traffic Management
Business Administration 175: Introduction to Foreign Trade
Business Administration 176: Exporting and Importing

33

Total.....

Chemistry

- Chemistry 11-12: General Chemistry
Chemistry 21: Qualitative Inorganic Analysis
Chemistry 22: Quantitative Inorganic Analysis
Chemistry 151-52: Organic Chemistry
Chemistry 191: History of Chemistry
Mathematics 6: Plane Trigonometry
Mathematics 21: Calculus I
Physics 1-2: General Physics (or former 11, 12, 13: Introductory Physics).....

8

4

4

9

3

3

8-9

41-42

Total.....

Dance

For information concerning the Dance teaching field, consult the Office of the Dean.

Elementary Education

- Education 113: Elementary School Art
Education 114: Elementary School Music
Geography 51, 52: Introduction to Geography, World Regions.....
History 71-72: Development of the Civilization of the United States.....
Mathematics 9: General Mathematics I.....
Mathematics 10: General Mathematics II.....
Physical Education 101: Physical Education in Elementary School.....
Six semester hours from the following, as approved by the adviser.....
Economics 1-2: Principles of Economics
History 29-40: Development of European Civilization in Its World Context
Political Science 9-10: Government of the United States
Religion 59-60: History of Religion
Anthropology 1: Man, Culture, and Society I
Sociology 2: Man, Culture, and Society II

3

3

6

6

3

3

3

9-12

6

42-45

Total.....

* Not required for the minor teaching field.

English	Semester Hours
English 1 or 1X, 2: English Composition.....	6
English 52: Introduction to English Literature.....	3
English 71-72: Introduction to American Literature.....	6
English 125: Introduction to English Linguistics.....	3
English 135-36: Shakespeare.....	6
Speech 11: Voice and Diction.....	3
*Nine semester hours from the following, as approved by the adviser.....	9
English 109: Expository Writing	
English 151-52: The Romantic Movement	
English 161-62: Victorian Literature	
English 165-66: The 20th Century	
English 170: The American Short Story	
English 171-72: Studies in American Literature	
English 173-74: Major American Poets	
English 175-76: American Drama	
English 177-78: The American Novel	
English 182: The English Novel	
English 183-84: The English Drama	
Total.....	36

French	
French 9-10: French Conversation and Composition.....	6
French 51-52: Survey of French Literature and Civilization.....	6
French 103: Problems of Pronunciation and Intonation.....	3
French 109-10: Advanced French Conversation and Composition.....	6
French 125-26: French Literature of the 19th Century.....	6
French 127-28: French Literature of the 20th Century.....	6
Additional French courses as approved.....	6
†Six semester hours from the following.....	6
French 119-20: French Literature of the 16th Century	
French 121-22: French Literature of the 17th Century	
French 123-24: French Literature of the 18th Century	
Foreign language other than French as approved	
Art 109: Nineteenth Century Art in Europe	
Art 130: Contemporary Art	
English 125: Introduction to English Linguistics	
History 141-42: History of France	
Psychology 115: Psychology of Language and Communication	
Total.....	39-45

General Science‡	
Biology 1-2.....	8
Chemistry 11-12: General Chemistry.....	8
Chemistry 21: Qualitative Inorganic Analysis.....	4
Physics 1-2: General Physics (or former 11, 12, 13: Introductory Physics).....	8-9
Physics 16: General Physics.....	3
Nine semester hours from the following.....	9
Mathematics 3: College Algebra	
Mathematics 6: Plane Trigonometry	
Mathematics 21, 22, 23, 24: Calculus I, II, III, IV	
Total.....	40-41

* Not required for the minor teaching field

† Recommended but not required

‡ May not be chosen as a minor teaching field

Geography		Semester Hours
Geography 51: Introduction to Geography.....		3
Geography 52: World Regions		3
Geography 103-4: Cartography		6
Geography 145: Psychological Geography		3
Geography 146: World Political Geography.....		3
Geology 1: Introductory Geology		3
Geology 22: Physiography		6
*Six semester hours from the following.....		
Geography 151: United States		
Geography 153: Western Europe		
Geography 154: The Mediterranean		
Geography 155: Africa		
Geography 159: The Middle East		
Geography 161: Latin America		
Geography 164: Communist China		
Geography 165: Eastern and Southeastern Asia		
Geography 166: The Soviet Union		6
*Six semester hours from the following.....		
Geography 124: Land Capabilities		
Geography 125: Transportation Complexes		
Geography 126: World Economies		
Geography 133: Regional Industrial Structures		
Geography 134: Location of Industry		
Geography 141-42: Urban Settlement		
Total.....		36

German

German 1-2: First-year German	6
German 3-4: Second-year German	6
German 9-10: German Conversation and Composition.....	6
German 51-52: Introduction to German Literature.....	2
German 179-80: Advanced Composition for Undergraduate and Graduate Majors	12
*Additional courses in German, as approved by the adviser.....	38
Total.....	

History

History 39-40: The Development of European Civilization in Its World Context	6
History 71-72: The Development of the Civilization of the United States.....	6
Six semester hours from three of the following groups, as approved by the adviser	18
Group 1: American History	
History 170: American Colonial History	
History 171-72: Social History of the United States	
History 173: Representative Americans	
History 174: Economic History of the United States	
History 175-76: Political and Constitutional History of the United States	
History 177: The South	
History 181-82: Diplomatic History of the United States	
History 183: Overseas Expansion of the United States	
Group 2: European History	
History 109-10: Ancient History	
History 111-12: Medieval History	
History 130: Nationalism	
History 131-32: History of Germany	

* Not required for the minor teaching field

Semester
Hours

History 141-42: History of France	
History 145-46: History of Russia	
History 147: Economic History of Europe	
History 149-50: European Diplomatic History	
History 151-52: History of England and Great Britain	
Group 3—The Eastern World	
History 145-46: History of Russia	
History 187: History of Modern China	
History 190: History of India	
History 193: History of the Near East	
History 195-96: History of East Asia	
Group 4—Latin American History	
History 163: Colonial Latin America	
History 164: South America since Independence	
History 166: Mexico and the Caribbean since Independence	
Political Science 177: Recent Trends in Latin American Politics and Government	
Political Science 178: International Politics in the Western Hemisphere	
*Additional semester hours from one of the foregoing groups, as approved by the adviser	6
Research Seminar (see adviser—Department of History)	6
Total	42

Mathematics

Mathematics 21, 22, 23, 24: Calculus I, II, III, IV	12
Mathematics 122: Introduction to Abstract Algebra	3
Mathematics 124: Introduction to Matrix Theory	3
*Mathematics 135: Projective Geometry	3
*Statistics 155: Introduction to Mathematical Probability	3
*Three additional courses in Mathematics, as approved by the adviser. The additional courses should include one additional course in geometry and one additional course in probability and statistics.	9
Total	33

Music

Music 3: Introduction to Music	3
Music 4: Survey of Music Literature and Forms	3
Music 5-6: Music Theory	6
Music 104: History of Music—1600 to Present	3
Music 131-32: Advanced Music Theory	6
Applied Music: Lessons, Voice, or Instrument	12
Ensemble: Choral or Orchestral	3
Three semester hours from the following	3
Music 115: Counterpoint	
Music 121: Orchestration	
Music 130: Form and Analysis	
Three semester hours from the following	3
Music 105: Music of the Baroque Period	
Music 106: Music of the Classical Period	
Music 107: Music of the Romantic Period	
Music 109: Orchestra Literature	
Music 110: Chamber Music Literature	
Music 121: The Opera	
Total	42

* Not required for the minor teaching field.

Physical Education*

	Semester Hours
Biology 1-2: Introductory Biology	8
Physiology (as approved by the adviser)	3
Physical Education 43-44: Techniques of Physical Education Motor Activities	4
Physical Education 49: Human Anatomy	3
Physical Education 50: Kinesiology	3
Physical Education 51-52† (women): Teaching Physical Education Activities	4
or Physical Education 115-16† (men): Teaching Team Sports in Secondary Schools	1
Physical Education 107: Teaching Recreational Dance	4
Physical Education 113-14† (women): Practice in Teaching Physical Education Activities	1
Physical Education 117† (women): Teaching Modern Dance	3
Physical Education 122: Methods and Materials for Health Education	3
Physical Education 138†: Organization and Administration of Physical Education	3
Total	36-37

Physics

Physics 1-2: General Physics	8
Physics 31-32: Introduction to Theoretical Physics (first offered 1965-66)	4
Physics 51-52: Introduction to Experimental Physics (first offered 1965-66)	4
Chemistry Elective—Chemistry 11-12: General Chemistry or Chemistry 12 and 21: General Chemistry and Qualitative Inorganic Analysis	8
Mathematics 21, 22, 23, 24: Calculus I, II, III, IV	12
Physics 161-62: Mechanics I-II	6
Physics 165: Electromagnetic Theory (first offered 1965-66)	3
Physics 167: Modern Physics (first offered 1965-66)	3
Total	48

Russian

Russian 1-2: First-year Russian	6
Russian 3-4: Second-year Russian	6
Russian 9-10: Russian Conversation and Composition	6
Russian 125: Russian Linguistic Structure	3
Russian 126: Comparative Russian-English Linguistic Structure	3
§ Additional courses chosen from the following with permission of the adviser	12
Russian 91-92: Introduction to Russian Literature	
Russian 93-94: Introduction to Slavic (non-Russian) Literature	
Russian 101-2: Readings in Modern Russian	
Russian 103-4: Scientific Russian	
Russian 109-10: Advanced Russian Conversation and Composition	
Russian 141-42: Russian Literature of the 19th Century	
Russian 151-52: Russian Literature of the 20th Century	
Russian 161-62: Russian Culture	
Russian 179-80: Advanced Russian for Undergraduate Majors	
Total	36

Social Studies

History 39-40: The Development of European Civilization in Its World Context	6
History 71-72: The Development of the Civilization of the United States	6

* May be chosen as a minor field only, for Bachelor of Arts in Education. See pages 9-12 for requirements for the Bachelor of Science in Physical Education.
† Required only of those preparing to teach on the secondary school level.
‡ Required only of those preparing to teach on the elementary school level.
§ Not required for the minor teaching field.

	Semester Hours
Political Science 9-10: Government of the United States.....	6
Twelve semester hours from the following.....	12
Economics 1-2: Principles of Economics.....	
Geography 51, 52: Introduction to Geography; World Regions.....	
Religion 59-60: History of Religion.....	
Anthropology 1: Man, Culture, and Society I.....	
Sociology 2: Man, Culture, and Society II.....	
*Additional second-group courses, as approved by the adviser, from one of the following fields, Anthropology, Economics, Geography, History, Political Sci- ence, Religion, and Sociology.....	12
Total.....	42

Spanish

Spanish 9, 10: Spanish Conversation and Composition.....	6
Spanish 51-52: Survey of Spanish Literature and Civilization.....	6
Spanish 103: Problems of Pronunciation and Intonation.....	3
Spanish 109-10: Advanced Spanish Conversation and Composition.....	6
Spanish 125-26: Modern Spanish Literature.....	6
Spanish 127-28: Contemporary Spanish Literature.....	6
Additional Spanish courses as approved.....	6
†Six semester hours from the following.....	6
Spanish 121-22: Spanish Literature of the Golden Age.....	
Spanish 123-24: Cervantes; Don Quixote.....	
Spanish 151-52: The Spanish American Novel.....	
Spanish 155-56: Spanish American Literature to 1880.....	
Spanish 157-58: Spanish American Literature since 1880.....	
Foreign language other than Spanish as approved.....	
English 125: Introduction to English Linguistics.....	
History 161: Ancient Americans.....	
History 162: Iberian Background of Latin America.....	
History 163: Colonial Latin America.....	
History 164: South America since Independence.....	
History 166: Mexico and the Caribbean since Independence.....	
Psychology 115: Psychology of Language and Communication.....	
Total.....	39-45

Speech

Speech 1: Effective Speaking.....	3
Speech 2: Persuasive Speaking.....	3
Speech 11: Voice and Diction.....	3
Speech 32: Oral Reading.....	3
Speech 101: Phonetics.....	3
Speech 121: Group Discussion and Conference Leadership.....	3
Speech 154: Play Production.....	3
Speech 171: Introduction to Speech Disorders.....	3
One of the following areas of specialization, as approved by the adviser:	
*Group 1—Speech Arts.....	12
Twelve semester hours from the following.....	
Speech 102: Oral Interpretation of Literature.....	
Speech 126: Public Discussion and Debate.....	
Speech 153: Acting.....	
Speech 166: History of the Theater.....	
Speech 169: Creative Dramatics.....	
Speech 170: Children's Theater.....	

* Not required for the minor teaching field.
† Recommended but not required.

***Group 2—Speech Correction**

12

Twelve semester hours from the following.....

Speech 173-74: Speech Therapy

Speech 176: Speech Hearing and Language Development

Speech 177-78: Clinical Practice in Speech Therapy

Speech 182: Hearing Problems and the Testing of Hearing

Speech 183-84: Clinical Practice in Hearing Therapy

Additional courses in English, Physiology, Psychology, or Speech, as approved by the adviser

36

Total.....

PROFESSIONAL EDUCATION

The basic professional information, skills, and attitudes needed by beginning teachers are provided through a sequence of courses to be taken in the junior and senior years. Lectures and class discussion are closely coordinated with field work. Instruction is differentiated to meet the needs of those preparing to teach on the various levels—elementary school, junior high school, senior high school, and adult.

Professional Courses—Secondary

3

Education 108: Human Development, Learning, and Teaching.....

3

Education 112: Educational Measurements

3

or Statistics 104: Statistics in Psychology and Education.....

3

Education 123: Society and the School.....

6-9

Education 131: Principles and Methods of Secondary School Teaching.....

3-6

Education 134: Student Teaching in Secondary Schools.....

Three to six semester hours from the following Special Methods courses.....

Education 136: Teaching English in Secondary Schools

Education 137: Teaching Speech

Education 138: Teaching Social Studies in Secondary Schools

Education 139: Teaching Art in Secondary Schools

Education 140: Teaching Mathematics in Secondary Schools

Education 141: Teaching Latin in Secondary Schools

Education 142: Teaching Music in Secondary Schools

Education 143: Teaching Science in Secondary Schools

Education 144: Teaching Foreign Languages

Education 146: Teaching Business Subjects

21-27

Total.....

Professional Courses—Elementary

3

Education 108: Human Development, Learning, and Teaching.....

12

Education 111: Methods in Elementary Education.....

3

Education 112: Educational Measurement

3

or Statistics 104: Statistics in Psychology and Education.....

9

Education 123: Society and the School.....

Education 135: Student Teaching in Elementary Schools.....

30

Total.....

Human Development, Learning, and Teaching

Students enrolled in the four-year programs leading to the degree of Bachelor of Arts in Education take this course in the junior year. Those enrolled in five-year programs take it in the fourth year.

* Not required for the minor teaching field

This course attempts to promote a functional understanding of the nature of human growth, development, and learning, illustrated by observation of children in learning situations; the nature of teaching based on principles of human growth, development, and learning, illustrated by observation of school situations. At least an equal amount of time is spent in observation and study of the application of these characteristics and principles to classroom situations. Class discussion normally revolves around these field experiences.

The course is also intended to provide the student with exploratory experiences of assistance to him in deciding whether to choose the profession of teaching. The student's performance in connection with the course is one of the factors considered when the Faculty reviews the list of candidates who have completed the first semester of the junior year (fourth year for those enrolled in five-year programs).

Society and the School

This course is also taken in the junior year by candidates enrolled in four-year programs (fourth year by those in five-year programs).

The course attempts to promote an understanding and appreciation of the role of schools in the sound promotion of the enduring interests of our democratic society. More particularly, it attempts to develop a functional understanding of the contributions of all social agencies in the education of people and of desirable cooperative working relations that help the school to play its part as a member of the institutional "team" of the community.

The course is also concerned with study of the school as a whole—its purposes, program of studies, out-of-class activities, general organization, and major instructional problems. Although schools at all levels are studied, students give particular attention to schools at the level within which they are preparing to teach.

Classes meet for lecture and discussion for one two-hour meeting each week. At least an equal amount of time is spent in field study. During the course each student studies cooperating social institutions. Extended study of schools at the level of the student's special interest is supplemented by briefer studies of schools at other levels. Class discussion is largely determined by field experiences.

This course is also intended to provide the student with exploratory experiences of guidance value. The performance of the student in the first half of the course is also given careful consideration by the Faculty in its review of the list of candidates at the beginning of the second semester of the junior year (fourth year for those enrolled in five-year programs).

Principles and Methods of Secondary School Teaching

Those enrolled in four-year programs take this course in the senior year. Those enrolled in five year programs take it in the fifth year.

The course is concerned with the skills needed by teachers in connection with classroom management, teaching techniques, homeroom procedures, administrative routines, activity sponsorship, group planning, and public relations.

Classes meet for two one hour meetings each week for lecture and discussion. At least an equal amount of time is spent in field study.

Special Methods Courses in Secondary Schools

Associated with each teaching field is a course dealing with its special teaching problems. In addition to the study of practices followed by successful teachers, ac-

tual teaching content as found in current texts and courses of study is reviewed. Needed content, not included in academic courses available for teaching-field preparation, is taught in these courses.

Student Teaching in Secondary Schools

This course is taken in the senior year by students enrolled in four-year programs (in the fifth year by those in five-year programs).

It begins with the observation of classroom teaching in selected situations. Assumption of responsibility for teaching functions is gradual, leading eventually to practice in the complete direction of classroom activities. Those preparing to teach in secondary schools have the opportunity of observing and doing practice teaching in both major and minor teaching fields on the senior high school level. The course is directed by full-time members of the Faculty of the School of Education. The work of each student is under the direct supervision of a critic teacher, selected because of unusual success in teaching, ability to supervise, and broad understanding of educational problems. Critic teachers are part-time members of the instructional staff of the School. Student teaching is done in the public schools of the metropolitan area of Washington, assuring practice in situations comparable to those the student is likely to face on becoming a teacher.

Methods in Elementary Education

Those enrolled in four-year programs take this course in the fall semester of the senior year. Those enrolled in five-year programs take it in the fall semester of the fifth year.

The course offers an integrated approach to general and special methods of instruction in elementary schools. It includes discussion of general skills needed in classroom management, administrative duties, group planning, and public relations. Special techniques of instruction include those needed in teaching arithmetic; science; social studies; and the language arts (reading, literature for children, oral and written expression, spelling, and handwriting). The planning of units of work and the evaluation of pupil progress are also discussed.

Students are required to devote each morning to the prescribed activities of this course. Three mornings a week (9:00-12:00 a.m.) are normally devoted to lectures and discussions by three staff members of the Department of Education. Two mornings a week are spent in observation of and participation in classroom instruction in cooperating public schools of the Metropolitan Area.

Educational Measurement

Those enrolled in four-year programs usually take this course in the senior year. Those enrolled in five-year programs take it in the fifth year.

The course is concerned with ways of discovering and appraising student needs, the selection of pertinent tests, the construction of teacher-made objective and essay type tests, and the interpretation of test results for guidance purposes.

The course meets for two hours once a week for classroom instruction. Out-of-class assignments include practice in the construction, administration, and scoring of tests.

Student Teaching in Elementary Schools

This course is taken in the senior year by students enrolled in four-year programs and in the fifth year by those enrolled in five-year programs.

Students who have not had previous teaching experience are normally assigned to student teaching for a period of twelve weeks. At the request of the student, this assignment may be divided between two different grade levels. An attempt is made to arrange a student-teaching placement in a school system within the Metropolitan Area of Washington and at the grade levels most appropriate in view of ultimate employment aims. Guidance is provided as the student learns to assume responsibility for the major teaching activities.

Students are not asked to take complete charge of a class at the beginning of the student teaching period. Assumption of full responsibility for teaching activities is gradual and is preceded by an initial period of guided participation and instruction. Toward the end of his assignment the student teacher takes full charge of the class for a considerable period.

Each student is supervised by a member of the Faculty of the School of Education. A cooperating teacher, chosen for proven teaching ability and the capacity to carry on a satisfactory supervisory relationship, is in direct charge of the student-teaching experience.

SPECIAL CURRICULA IN ELEMENTARY EDUCATION

Students preparing for elementary school teaching may also qualify as teachers of French, Spanish, remedial speech, and physical education. Programs should be planned in conference with an adviser.

ATTITUDES NEEDED FOR SUCCESS IN TEACHING

The development of attitudes that motivate professional behavior consistent with the nature of the learning-teaching process is basic to success in teaching. Among the most important of these attitudes are: appreciation of the role of learning in human improvement, respect for intellectual proficiency and true scholarship, objective thinking, and a sense of mission as a member of an important profession.

The responsibility for developing and strengthening attitudes favorable to success in teaching is shared by all parts of the program of teacher education. General education provides a foundation of information essential to an understanding of the course of human events, skills that promote effective social intercourse, the bases of perspective, and an appreciation of cultural development. Teaching-field preparation stimulates intellectual curiosity and respect for objective scholarship in contrast to rationalization. Professional education is organized in a sequence of learning activities primarily based upon the results of research concerning the ways in which the learner grows and develops.

To help students understand the role of education in society and human development and, thus, strengthen a sense of mission and pride in becoming members of the teaching profession, professional courses are closely related to field experiences, and students are encouraged to discuss freely varying viewpoints concerning goals and the interpretation of research data.

Since individual needs in the development of attitudes vary widely, students are encouraged to confer frequently with staff members. Conference hours are designated for this purpose.

Five-year Programs Leading to the Degrees of Bachelor of Arts and Master of Arts in Education

Five-year programs are designed: to permit more adequate teaching-field and professional preparation, to prepare for special teaching positions, and to meet teaching-certificate requirements based upon five years of preparation.

Students in these programs usually devote the third year to additional teaching-field preparation and general education. Ordinarily, teaching-field preparation is continued in the fourth year and the first two professional courses (Education 108 and 123) are taken. The work of the fifth year includes the remaining undergraduate professional courses and the balance of graduate courses needed to meet the requirements of the degree of Master of Arts in Education.

Candidates must have a quality-point index of at least 2.50 before beginning the work of the fourth year. As much as 13 semester hours of the work of the fourth year may be taken for graduate credit. Student Teaching in Secondary Schools, and Student Teaching in Elementary Schools taken in the fifth year, may not be taken for graduate credit.

Candidates enrolled in five-year programs on the secondary school level are able to prepare more adequately in their major or minor teaching fields, or in both. Additional teaching-field courses must be approved by the adviser in the teaching field concerned.

The five-year plan of study also provides an opportunity for candidates to prepare to teach "common learnings" courses in one or more of the various core curriculum plans now found in many secondary schools. Such programs need to be carefully planned to meet the demands of the situation in which the candidate hopes to teach.

A number of cities and some states require five years of satisfactory preparation before issuing certain teaching certificates. Candidates seeking such certificates should familiarize themselves with the requirements of the school system or state concerned and plan their programs accordingly.

Candidates enrolled in five-year programs on the elementary school level are able, in addition to preparation as regular classroom teachers, to prepare for special positions such as: teacher of a foreign language, specialist in remedial speech, specialist in remedial reading, and itinerant teacher of Physical Education.

Five-year programs must meet all the requirements of the degrees of Bachelor of Arts and Master of Arts in Education, and must be approved by the adviser designated for these programs.

The Degree of Master of Arts in Education

Programs of study leading to the degree of Master of Arts in Education are designed to enable prospective teachers and teachers of experience to increase their knowledge of professional and academic information and skills, prepare for special types of educational service, and provide opportunities for graduates of liberal arts or other nonteacher education institutions to acquire needed professional education.

From the various related departments of the University, the student and his adviser select courses to give the student an adequate background in his chosen field of service. The prospective high school or junior high school teacher will ordinarily include study in the subject which he is planning to teach as well as in professional education.

Programs for teachers-in-service and experienced teachers planning to re-enter the profession are differentiated from those for students without teaching experience. Additional information concerning these programs may be obtained by writing or telephoning to the Dean.

Graduate programs of study are available in the following fields: (1) adult education, (2) classroom teaching—to include strengthening mastery of teaching field, (3) comparative education, (4) curriculum, (5) elementary education, (6) employee training, (7) guidance, (8) history of education, (9) philosophy of education, (10) reading, (11) school administration—secondary or elementary school principalship, (12) secondary education, (13) physical education, and (14) student personnel work in higher education.

ADMISSION TO CANDIDACY

To be admitted to candidacy for the degree of Master of Arts in Education the applicant must (1) hold a Bachelor's degree from an accredited institution, (2) have an undergraduate quality point index of 2.50 or above (*C's average*), (3) have demonstrated a genuine interest in teaching, and (4) have personality traits that give promise of better than average success as a teacher. Those wishing to prepare for careers in guidance or administration must have had at least two years of successful teaching experience. Candidates whose undergraduate preparation does not include equivalents of the basic requirements of the Bachelor of Arts in Education must make up deficiencies and may be required to take designated tests.

ADVANCED STANDING

For the record, advanced standing is granted for approved courses taken at other accredited institutions, but a minimum of 30 semester hours must be completed at this University as a matriculated candidate for the degree.

Advanced courses completed in this University in excess of the requirements for the Bachelor's degree may be credited toward the Master's degree to the extent of 12 semester hours, if the work fits in with the student's plan of specialization and is approved in writing by the Dean before being undertaken.

Advanced standing is not granted for work completed five or more years before application for admission or readmission to Master's candidacy.

REQUIREMENTS FOR THE DEGREE

PLAN OF STUDY

The plan of study leading to the degree of Master of Arts in Education requires a minimum of 33 hours of graduate credit. The plan may, at the student's option, include a thesis carrying 6 hours of graduate credit. Whether or not a student selects the thesis option, a minimum of 13 hours, including a course in educational research methods and procedures, must be from courses planned primarily for graduate students (third group courses). A minimum of 12 hours, not including the thesis or the research course must be from courses offered by the Department of Education.

Programs may include additional teaching field preparation. In such cases, however, undergraduate and graduate courses combined must be at least equivalent to the undergraduate requirements for the degree of Bachelor of Arts in Education (see pages 13-27).

Programs are planned initially in conference with an admissions adviser in the Office of the School of Education and subsequently with a designated adviser in the candidate's area of specialization. They take into consideration the interest of the candidate, the previous background, certification requirements of the state and locality in which he plans to teach.

All degree requirements must be completed within a period of six years after admission to study.

RESIDENCE

Candidates for the degree of Master of Arts in Education must complete satisfactorily at this University, as matriculated candidates in the School of Education, a minimum of 30 semester hours, 9 of which, with the approval of the adviser, may be off-campus courses in the College of General Studies.

THE THESIS

If a candidate selects the thesis option, the thesis must conform to standards prescribed. A statement of these standards may be obtained at the Office of the Dean.

The thesis subject must be approved in writing by the candidate's adviser and filed in the Office of the Dean by the date announced in the Calendar. The thesis in its final form must be presented to the Dean no later than the date announced in the Calendar. Printed copies of detailed regulations regarding the form and reproduction of the thesis (see page 47) are available in the Office of the Dean.

Payment of tuition for the thesis will entitle the candidate, during the academic year of registration, to the advice and direction of the member of the Faculty under whom the thesis is to be written. In case a thesis is unfinished, an additional successive academic year may be granted without further tuition payment. The student must, however, be registered in residence during this period. If the preparation of the thesis extends beyond the two year period it must be registered for again and tuition paid on the same basis as for a repeated course.

COMPREHENSIVE EXAMINATION

In addition to the course examinations, the candidate must pass a comprehensive examination in two parts: (1) a general three-hour examination concerned with an integrated understanding of the foundations of professional education, and (2) a special three-hour examination concerned with the candidate's area of specialization. Candidates for the examination must be registered for the semester it is to be taken, and must file a written application in the Office of the School of Education not later than thirty days prior to the date of the examination.

*The Advanced Professional Certificate**

This program is designed to prepare teachers for more effective service in their chosen fields and to enable them to qualify for a higher step in the local salary scale.

The program of studies leading to the Certificate is selected by the candidate and his adviser from the various related departments of the University in accordance with the student's needs. In general it includes 30 hours of graduate credit beyond the Master's degree. The candidate wishing to increase his teaching proficiency may include additional study in his teaching field.

ADMISSION TO CANDIDACY

The requirements for admission to candidacy for the Advanced Professional Certificate are (1) the degree of Bachelor of Arts in Education or Bachelor of Science in Physical Education from this University, or the equivalent from another institution of higher learning; (2) a Master's degree from an accredited institution of higher learning; (3) at least two years of successful teaching experience; and (4) a permanent teaching license. The applicant who is unable to meet the admission requirements may be admitted with deficiencies to be met by satisfactorily completing prerequisites in addition to the specified program of graduate study. Each applicant must be interviewed by a member of the Faculty of the School of Education.

ADVANCED STANDING AND TRANSFER OF CREDIT

Advanced standing is granted for appropriate graduate work completed in other accredited higher institutions. However, a minimum of 18 semester hours must be completed at this University as a matriculated candidate in the School of Education. The candidate is encouraged to include in his program study at other accredited higher institutions when such study seems to be in his best interest. Advanced standing is not granted for work completed five or more years before application for admission or readmission.

* Open only to candidates accepted prior to June 1, 1961.

REQUIREMENTS FOR THE CERTIFICATE

PLANS OF STUDY

In planning his program the candidate should give first consideration to his particular needs. If his study for the Master's degree was largely in professional education, he may need courses in his teaching field. If his Master's preparation was in a content field, he may need professional study.

The program must include, in addition to any prerequisites, a minimum of 30 hours of graduate credit, 24 hours of which must be in third-group courses (or the equivalent at other institutions). A maximum of 6 semester hours of graduate credit in second-group courses may be included, a minimum of 12 hours in courses offered by the School of Education must be included.

RESIDENCE

Candidates for the Advanced Professional Certificate must complete satisfactorily at this University a minimum of 18 semester hours in courses offered on the campus. The balance of the program may include off-campus courses in the College of General Studies or in other approved institutions of higher learning. The candidate is not required to pursue his program of study continuously. On request, a leave of absence is granted for a period not to exceed three years.

The Degree of Education Specialist

For students who have completed the requirements for a Master's degree in Education and who seek further preparation toward a specific professional objective, the School of Education provides a program of advanced study leading to the degree of Education Specialist. This degree is now available only in the field of administration, but programs in other specialties are projected.

ADMISSION TO CANDIDACY

The requirements for admission to candidacy for the degree of Education Specialist are (1) a Master of Arts in Education degree from The George Washington University or the equivalent from another accredited institution of higher learning, (2) a satisfactory score on the Graduate Record Examination, and (3) at least two years of successful pertinent educational experience. The applicant who is unable to meet the admission requirements may be admitted with deficiencies to be met by satisfactorily completing prerequisites in addition to the specified program of graduate study. Each applicant must be interviewed and recommended for admission by a staff member of the Department of Education, or by a representative in the candidate's locality appointed by the Dean of the School of Education.

PROGRAMS OF STUDY AND DEGREE REQUIREMENTS

Individual programs are developed, through the faculty-adviser plan, to fit the candidates' abilities, interests, needs, and career goals. Thirty semester hours of

work beyond the requirements of the degree of Master of Arts in Education at The George Washington University are specified. At least 21 hours of this work must be taken on campus at this University. A maximum of five calendar years is allowed for completion of the program of study.

At least 12 of the required 30 hours must be in graduate courses in Education selected as appropriate from the following areas of study: (1) foundations and cognate study, (2) background and general principles of the field of study, (3) an area of specialization within the field of study.

THE COMPREHENSIVE EXAMINATION

Successful completion of two three-hour examinations is required.

THE ORAL EXAMINATION

The final oral examination must be passed at least three weeks before the degree is to be conferred. The examination is conducted by a committee consisting of members of the staff of the Department of Education and at least one successful practitioner in the appropriate area of specialization, appointed by the Committee on Graduate Studies of the School of Education.

The Degree of Doctor of Education

The School of Education offers programs of advanced study leading to the degree of Doctor of Education. These programs are under the supervision of the Committee on Graduate Studies and provide opportunities for study leading to the following professional objectives: school superintendent, secondary school principal, elementary school principal, supervisor, director of guidance, director of curriculum development, professor of education, and specialist in educational research, employee training, or adult education. All programs require study of interrelated areas of education as well as a doctoral dissertation in the major field of study.

Each program is divided into two parts. The first consists of preparation for and the passing of comprehensive examinations in each of four supporting fields and a major field of study. The second is composed of research investigation and the writing of a dissertation in the major field of interest and culminates in the final oral examination.

ADMISSION

The applicant must possess adequate preparation for advanced study including graduate work in fields prerequisite to his objective equivalent to that required for the degree of Master of Arts in Education or the degree of Education Specialist at this University, at least three years of successful pertinent educational experience, acceptable personal qualities, and a capacity for creative scholarship and effective leadership.

The applicant first arranges for a preliminary interview with the Assistant Dean for advanced graduate studies to explore his needs in relation to the resources of the School of Education and to provide the guidance needed to proceed with an application for advanced study.

To be admitted to graduate study for the degree, the applicant must be accepted by the Committee on Graduate Studies on the basis of the following factors: (1) his previous scholastic and professional record, (2) the results of prescribed admission tests including the Aptitude Test of the Graduate Record Examination, (3) individual evaluation through personal conferences with at least three faculty members including the major professor under whom the applicant desires to pursue his work, and (4) the outcome of a group interview with the Committee on Graduate Studies.

COMMITTEE ON GRADUATE STUDIES

The responsibility for selection of supporting and major fields rests with the candidate. Each applicant when he appears before the Committee on Graduate Studies should be prepared to present an outline of his plan of study including the selection of major and supporting fields and the tools of investigation needed for the completion of a doctoral dissertation. The tools may include one foreign language or more, statistical methods, or historical criticism. Candidates with less preparation than that normally required for a Bachelor's and Master's degree in Education must make up their deficiencies either prerequisite to or as part of their graduate work.

STUDY FOR THE MAJOR AND SUPPORTING FIELD EXAMINATIONS

The requirements for the degree of Doctor of Education cannot be stated in semester hours, but they consist in general of at least two to three years of full-time work, or the equivalent of part-time work, beyond the degree of Master of Arts in Education. Upon admission to study for the first part of a doctoral program the applicant is assigned to a Committee which prescribes and directs his studies. The Committee is composed of professors who will direct the student's work in the major and four supporting fields. Preparation for and the passing of supporting field examinations and the tool subject examination precedes preparation for and taking the final examination in the major field.

A student is required to consult individually with supporting and major field professors in order to determine the requirements for each field of study and to receive guidance in preparation for each examination. Supporting field examinations are written and are six hours in length. The major field examination is twelve hours in length, six hours on each of two successive days. Upon satisfactory completion of all supporting and major field examinations the student, upon recommendation of the Committee on Graduate Studies, is permitted to pursue the second part of his doctoral program.

THE DISSERTATION AND THE FINAL EXAMINATION

The student permitted to continue the second part of a doctoral program is assigned to a Master in Research, generally the major field adviser. Throughout the remainder of the program, the candidate is responsible solely to his Master in Research. Two additional faculty members assist the Master in reading the first draft of the candidate's dissertation. When the dissertation is considered acceptable, the Master recommends the candidate to the Dean for the final oral examination.

The final oral examination must be passed at least three weeks before the degree is to be conferred. The examination is conducted by a committee of the Faculty appointed by the Dean, supplemented by at least two leaders in the candidate's field of study from outside the University. The examination is open to the public. Can-

didates who successfully pass the oral examination are recommended for the degree by the Faculty of the School of Education.

No later than the date specified in the University calendar the candidate must submit to the Dean three complete copies of the dissertation (including a summary which is to be inserted as an appendix) together with a fourth copy of the summary and a copy of the abstract for inclusion in the announcement of the examination. The summaries of accepted dissertations will be printed in a numbered issue of the University BULLETIN.

RESIDENCE AND CONTINUOUS STUDY

All the preparation for the degree must be done in residence. The student must maintain continuous registration in the School of Education, except when the Committee on Graduate Studies has granted a leave of absence. Failure to maintain registration in each semester of the academic year may result in lapse of candidacy. Subsequent readmission is subject to whatever new conditions and regulations have been established by the Committee on Graduate Studies.

There is no formal regulation concerning the maximum amount of time to be spent in preparation for the minor and supporting field examinations or as a candidate engaged in doctoral research. The supporting and major field examinations, however, must be completed within five years of the date of admission and the entire program must be completed within eight years, regardless of full-time or part-time study. Each candidate is required to complete one semester or more of his program in full-time study. Full-time study of 9 semester hours or more in the Summer Session is equivalent to full-time study for one semester.

Special Programs and Services

SPECIAL PROGRAM IN ELEMENTARY TEACHER EDUCATION

For six years, beginning with 1963-64, the School of Education will offer an intensive fifth-year program designed to prepare outstanding graduates of accredited liberal arts colleges for teaching in elementary schools. This program is supported by a grant from The Ford Foundation. Successful fulfillment of its requirements leads to certification as an elementary teacher and fifteen hours of graduate credit toward the degree of Master of Arts in Education.

Limited tuition aid is available. Grants-in-aid, in amounts justified by need, are awarded to candidates by the Selection Committee. Brochures of information may be secured by writing to: Program Director, Special Program in Elementary Teacher Education, School of Education, The George Washington University, Washington, D. C. 20006.

ADMISSION TO THE PROGRAM

To be admitted as a student-intern, an applicant must (1) have a Bachelor's degree from an accredited liberal arts institution, including courses which will meet the general education requirements for teacher certification, (2) show evidence of in-

terest in children and a sincere desire to teach, (3) submit three written references attesting to quality of academic record and personality, (4) submit a score on the Aptitude Test of the Graduate Record Examination, and (5) be interviewed by the University Selection Committee, or under arrangements specified by the Committee and approved by the Dean of the School of Education.

PLAN OF STUDY

The program of study begins with a six-week summer session and continues through the first twelve weeks of the fall semester. Course work during this time is planned to help each student gain understanding of (1) the characteristics of elementary school children, (2) the subject-matter areas of the elementary school curriculum, (3) basic dimensions of teaching methodology, (4) the relationship between educational theory and methods, (5) educational tests and measurements, and (6) the role of the school in American society.

During the last six weeks of the fall semester, students will be given full-time student teaching assignment in a near-by public school. This part of the program will permit the student to use, in an actual teaching situation, the educational theories and methods which he has been studying. It is accompanied by a weekly on-campus seminar.

A salaried internship during the spring semester in one of the cooperating school systems in the area gives the student an opportunity to assume the responsibilities of a beginning teacher, with the help and guidance of university and public school staff members. Seminar meetings will be scheduled weekly for discussion of common problems and for cooperatively planned work on individual and group needs of interns.

EDUCATION OF TEACHERS OF MENTALLY RETARDED CHILDREN

Beginning with the 1964-65 fall semester, the School of Education will offer a program for the education of teachers of mentally retarded children. The program includes Education 180, 181, 135, 136, 189, 244, 246, and appropriate related courses. Laboratory experiences will be arranged in schools for mentally retarded children in the metropolitan area. Students will be accepted at the senior year undergraduate, Master's, Education Specialist, and Doctoral levels. By special permission, teachers, school administrators, and adequately prepared students from other schools and colleges of the University may elect these courses.

Inquiries concerning the program and the availability of scholarships and fellowships should be directed to the Program Director, Dr. Perry Botwin, The School of Education.

CERTIFICATION CURRICULA

The School of Education provides special curricula for liberal arts graduates, housewives, and retired military personnel who wish to prepare for teaching. Those seeking certification through completion of a program of teacher preparation ap-

proved by the National Council for Accreditation of Teacher Education but who do not wish to work for a degree, may enroll in a certification program if they meet the admission, scholarship, and personality requirements of degree candidates. The School also provides a wide range of courses of interest to teachers who wish to renew licenses. See "Application for Admission".

READING CENTER

To help children and adults with reading difficulties the University operates a diagnostic and corrective reading center. Children may be referred by principals, teachers, or parents. Adults may apply by telephone.

To arrange for a clinical examination of reading status, address The George Washington University Reading Center, 2013 I Street NW., or telephone FEderal 8-0250, Extension 491, for an appointment. The center is open for appointments Monday through Friday, from 9:00 a.m. to 5:00 p.m.

Fees.—The fee for individual diagnosis is \$15; for individual instruction, \$6 a lesson; for semi-individual instruction, \$5 a lesson; for instruction in small groups with common reading difficulties, \$3.75 a lesson (\$3.25 for students currently enrolled in the University). All fees are payable in advance at the Office of the Cashier.

Admission

APPLICATION FOR ADMISSION OR READMISSION

Forms for application for admission or readmission are available at the Office of the Director of Admissions, 2029 G Street NW., Washington, D. C. 20006; telephone: FE 8-0250, extension 344. The application for admission to degree candidacy or to a special program, with a \$15 application fee and a recent, sized photograph, should be returned to the Office of the Director of Admissions.

To insure consideration, the application, together with all required credentials, should be received by July 1 for the fall semester, January 1 for the spring semester, May 1 for the first summer session, or June 1 for the second summer session.

No application for degree candidacy will be considered after September 1 for the fall semester, January 10 for the spring semester, June 1 for the first summer session, or July 1 for the second summer session.

An applicant who has attended one or more institutions of higher learning must request each registrar to mail directly to the Office of the Director of Admissions a transcript of his record, even though credits were not earned. If high school units are not shown on the college transcript, the applicant should request his high school to submit a transcript to the Office of the Director of Admissions.

Admission to graduate study.—A student with a Bachelor's degree from this University who wishes to undertake graduate study must apply, at the Office of the Director of Admissions.

READMISSION

A student previously registered in the University who was not registered on-campus during the immediately preceding semester (summer session excluded), must apply for readmission in the Office of the Director of Admissions. If he applies as a degree candidate and was previously registered as a nondegree student, or if he has attended one or more higher institutions during his absence from the University, he must have complete, official transcripts sent to the Office of the Director of Admissions from each institution attended. Applications for readmission are considered on the basis of regulations currently effective.

ENTRANCE REQUIREMENTS

FOR THE BACHELOR'S DEGREES

Bachelor of Arts in Education or Bachelor of Science in Physical Education

The satisfactory completion of the two-year curriculum in Education or Physical Education offered in the lower-division of Columbian College of Arts and Sciences (see pages 10, 12, 13-14), or the equivalent from another accredited higher institution, or a certificate of graduation from an approved normal school or the equivalent is required. The applicant must have a quality-point index of 2.00 (average grade of *C*) counting *Incomplete* grades as *F*. He must have demonstrated a genuine interest in teaching, possess personality traits that give promise of success as a teacher.

Applicants in the Metropolitan Washington Area must have a personal conference with the Assistant Dean of the School of Education in charge of admission or with one of his assistants. Applicants from a distance who are strongly recommended as good teacher prospects by a member of the Faculty of another institution may be admitted without a personal conference.

Applicants who have not completed requirements in the appropriate pre-Education curriculum in Columbian College of Arts and Sciences, or the equivalent at other accredited institutions, may be admitted to the School of Education with deficiencies. Such deficiencies must be removed before graduation and in the sequence prescribed by the student's adviser.

ADVANCED STANDING

An applicant for advanced standing may be considered for admission upon presentation of satisfactory credentials from an accredited institution of higher learning. The student must be in good standing as to scholarship and conduct and must be eligible to return to the previously attended institution in the semester for which he seeks admission to this University. Credit for transferred work will be assigned by the School of Education to the extent that it meets the requirements for the degree sought at this University and subject to the University regulations concerning satisfactory subsequent work.

The applicant who is unable to meet the admission requirements may be admitted with deficiencies to be met by satisfactorily completing prerequisites in addition to the specified program of graduate study. Each applicant must be interviewed by a member of the Faculty of the School of Education. The applicant seeking to qualify for a higher level in the local salary scale must have his program approved by the appropriate representative of the school system employing him.

Registration

A student cannot register for classes until he has received a letter of admission to the University, issued by the Office of the Director of Admissions.

A student previously registered in the University who was not registered on campus during the immediate preceding semester (summer session excluded), must apply for readmission in the Office of Admissions.

No registration is accepted for less than a semester or one summer session.

A student may not register concurrently in this University and another institution without the prior permission of the dean of the college, school, or division in which he is registered in this University. Registration in more than one college, school, or division of the University requires the written permission of the deans concerned, prior to registration. Allowance for credit for work done concurrently at another institution will be at the discretion of the appropriate committee.

Fees and Financial Regulations

The following fees were adopted for the academic year 1964-65:

Tuition Fees

For undergraduate, Master's, Advanced Professional Certificate, and Education Specialist study:	
Full-time program (12 to 18 hours), a semester*	\$625.00
Part-time program and hours in excess of 18, for each semester month	40.00
Doctor of Education†:	
For work leading to and including the major field examination	1,500.00
For work leading to and including the final examination	900.00

Additional Course Fees

In certain courses additional fees, such as laboratory and material fees, are charged as indicated in the course descriptions. These fees are charged by the semester and, unless otherwise indicated, may be delayed in two payments when the tuition is paid in this manner. Breakage of apparatus is charged against the individual student. When breakage is in excess of the normal amount provided for it, the laboratory fee for the fully paid student will be required to pay such additional charges as are determined by the department concerned.

* Payment of tuition for a Master's thesis entitles the candidate, during the academic year of registration, to the advice and direction of a number of the faculty under whom the thesis is to be written. In case a thesis is not written, an additional successive academic year may be granted without further tuition payment. The student must, however, be registered "in residence" during this period. If the preparation of the thesis extends beyond the second academic year, it must be registered for again, and tuition paid on the same basis as for a repeated course.

† As long as there is an unpaid balance for the part of the program on which the student is working, he must make at least the minimum tuition payment of \$150 at each fall and spring registration, and for any summer session in which he registers for academic work.

If the total fee is paid for the part of the program on which the student is working, he may continue to register, without additional fee, for courses approved by his Master in Research, until the expiration of the time allowed for that part of his program.

Graduation Fees

Bachelor's, Master's, Education Specialist, Doctor's degrees.....	25.00
Advanced Professional Certificate.....	25.00
Fee for Binding Master's Thesis.....	6.00
Fee for Printing Summary of Doctoral Dissertation.....	85.00

Special Fees

Application fee, nonrefundable.....	15.00
Application for room reservation fee.....	100.00
Admission tests (when required).....	6.00 12.00
Late-registration fee for failure to register within the designated period.....	5.00
Change fee, for each change in program: dropping or adding a course, changing from one section to another within a course, change of status (from auditor to credit status or vice versa), and change in credit hours for a course.....	2.00
National Teacher Examinations fee, for Bachelor of Arts in Education degree candidates.....	9.00 13.00
Withdrawal fee, charged in special cases.....	5.00
Service fee, for deferred payment plan (see "Payment of Fees").....	10.00
Reinstatement fee, for reinstatement after financial suspension.....	
Residence fee, to maintain "in residence" status during any semester of absence from the University or after completion of tuition requirements.*	40.00
Due and payable on the official days of registration.....	
For each examination to qualify for advanced standing and for each special examination.....	5.00
English test for foreign students (when required).....	5.00
Laboratory check-out fee, for failure to check out of chemistry laboratory by the date deadline set by the instructor.....	3.00
Transcript fee, for each transcript of record.....	1.00

Registration in the University entitles each student to the following University privileges: (1) the services of the Placement Office; (2) the use of University library; (3) gymnasium privileges; (4) admission to all athletic contests, unless otherwise specified; (5) subscription to the *University Hatchet*, the student newspaper; (6) admission to University debates; (7) medical attention and hospital services as described under Health Services. These privileges terminate and a student is no longer in residence when he withdraws or is dismissed from the University.

PAYMENT OF FEES

All fees are payable at the Office of the Cashier, 725 Twenty-first Street NW. No student is permitted to complete registration or attend classes until all fees are paid.

Tuition and fees for each semester are due and payable in full at the time of each registration.

However, a student registered for six semester hours or more may sign a contract with the Office of the Cashier at the time of each registration permitting him to pay one-half of the total tuition and fees (except for fees payable in advance) at the time of registration and the remaining half on or before November 4, 1964 (for the fall semester) and March 17, 1965 (for the spring semester). A Service Fee of \$5 will be due and payable at the time of registration for the use of this deferred payment

* Payment of the residence fee entitles the student who is granted leave of absence to return and continue his work toward a degree under the academic requirements which were in force at the time of his first registration. The residence fee applies toward meeting financial and residence requirements for the degree.

plan. The University will not obligate itself to notify the student, in advance of the payment-due date, for the second half of the semester charges. Students who fail to make any payment when due will be automatically suspended and may not attend classes until they have paid all accrued fees and a \$10 Reinstatement Fee and have been officially reinstated by the Office of the Cashier.

A student suspended for failure to meet payments when due may not be reinstated for the semester after two weeks from the date of suspension. Applications for reinstatement are to be made to the Office of the Cashier.

An auditor pays all fees chargeable to the student registered for credit except the late-registration fee.

Because many parents may wish some option in meeting and financing all or part of the cost of a college education, the University offers educational loan plans through the Girard Trust Corn Exchange Bank in Philadelphia, Pennsylvania; Funds for Education, Inc., Manchester, New Hampshire; and The Riggs National Bank, Washington, D. C.

Although similar in purpose, these plans vary somewhat in coverage and conditions. One year and multiple year plans are available. Insurance covering the life and health of the sponsor is provided through these plans.

Individuals over twenty-one years of age who are employed full-time are also eligible to apply. They may sponsor their own contracts, provided they meet the conditions specified by the plan for which they are applying.

Brochures and applications describing these plans are available in the Office of the Vice President and Treasurer.

WITHDRAWALS AND REFUNDS

Applications for withdrawal from the University or for change in class schedule must be made in person or in writing to the dean of the college, school, or division in which the student is registered. Notification to an instructor is not an acceptable notice (see "Withdrawal", page 44).

In authorized withdrawals and changes in schedule, cancellations of semester tuition charges and fees will be made in accordance with the following schedule:

1. Complete withdrawal from the University:

Fall Semester

Withdrawal dated on or before September 25, 1964	90 per cent
Withdrawal dated September 28 to October 9, 1964	75 per cent
Withdrawal dated October 12 to October 23, 1964	50 per cent
Withdrawal dated after October 23, 1964	none

Spring Semester

Withdrawal dated on or before February 5, 1965	90 per cent
Withdrawal dated February 8 to February 19, 1965	75 per cent
Withdrawal dated February 22 to March 5, 1965	50 per cent
Withdrawal dated after March 5, 1965	none

2. For a change in status from full-time to part-time student or for partial withdrawal by a part-time student, the above schedule applies to the difference in charges between the original program and the adjusted program continuing in effect.

3. A student enrolled in a full-time program, who drops or adds a course and continues to be in a full-time program, will have no financial adjustments of tuition made other than those involving course fees.

In no case will tuition be reduced or refunded because of absence from classes.

Payment applies only to the semester for which a registration charge is incurred and in no case will this payment be credited to another semester.

Students in chemistry who fail to check out of the laboratory on or before the date set by the instructor, unless excused by the instructor, will be charged a \$3 checkout fee. A student who drops a course before the end of the semester must check out of the laboratory at the next regular laboratory period.

Students enrolled in the Air Force ROTC who fail to turn in uniforms, equipment, and textbooks, on separation from the Corps, are charged the value of the missing items.

Authorization to withdraw and certification for work done will not be given a student who has not a clear financial record.

Students are encouraged to provide their own cash funds until they can make banking arrangements in the community.

Regulations

AMOUNT OF WORK

Fifteen to 17 semester hours of credit constitute a normal program. A student with a quality-point index of 3.00 or higher, may, with the permission of the Dean, enroll for 18 or 19 hours. No student may enroll for more than 19, except by permission of the Committee on Scholarship.

A student employed 15 hours or less a week may carry a normal program of college work.

A student employed from 16 to 25 hours a week may enroll for 12 or 13 hours. Such a student with a quality-point index of 3.00 or higher may, with special permission of the Dean, enroll for 15 or 16 hours.

A student employed from 26 to 34 hours a week may enroll for 9 or 10 hours. Such a student with a quality-point index of 3.00 or higher may, with special permission of the Dean, enroll for 12 or 13 hours.

A student employed 35 hours or more a week may enroll for 6 or 7 hours. Such a student with a quality-point index of 3.00 or higher may, with special permission of the Dean, enroll for 9 or 10 hours.

A student who increases his hours of employment after registration or at any time during a semester must report immediately to the Dean so that his program may be adjusted, if necessary.

ATTENDANCE

A student may not attend classes until registration is completed and fees due are paid. Regular attendance is required. A student may be dropped from any course for undue absence.

SCHOLARSHIP

A student who fails to maintain the scholarship requirements of the School of Education may be dismissed from the University.

GRADES

Grades are mailed to the student through the Office of the Registrar at the close of each semester. They are not given out by instructors.

Undergraduate

The following grading system is used: *A*, excellent; *B*, good; *C*, average; *D*, passing; *F*, failing; *CR*, indicates credit. Whenever a grade has not been assigned the symbol *I* (incomplete) or the symbol *W* (authorized withdrawal) will be recorded. The symbol *I* indicates that a satisfactory explanation has been given the instructor for the student's failure to complete the required work of the course. An "incomplete" cannot be made up after the lapse of one calendar year except by written permission of the dean's council of the college, school, or division concerned. An incomplete which is not removed within one calendar year is automatically changed to an *F*. A student may not repeat for grade a course in which he has received a grade of *D* or above, unless required to do so by the department concerned. A written statement to this effect must be submitted to the Registrar by the appropriate departmental chairman.

Graduate

For graduate work, grades are indicated as *E* (excellent), *S* (satisfactory), *U* (unsatisfactory), *I* (incomplete), *CR* indicates credit.

THE QUALITY-POINT INDEX

Undergraduate scholarship is computed in terms of the quality-point index, obtained by dividing the number of quality points by the number of semester hours for which the student has registered, both based on the complete record in this University.

Quality points are computed from grades as follows: *A*, four points; *B*, three points; *C*, two points; *D*, one point; *F*, no points, for each semester hour for which the student has registered. Courses marked *W* or *I* are not considered in determining the index, except that courses marked *I* will be considered when a formal grade is recorded. An incomplete which is not removed within one calendar year is automatically changed to an *F*. Grades in courses taken at another institution are not considered in computing the quality-point index.

ACADEMIC DISHONESTY

Evidence of dishonesty on the part of any student will result in his suspension by the Dean upon recommendation of the Dean's Council.

A student found guilty of dishonesty will be suspended for a stated period and will be deprived of credit for all courses in which he is enrolled during the semester in which the dishonest act occurs. A disciplinary grade of "Failure—Academic Dishonesty" will be recorded for each such course, and this grade will be employed in computation of the quality-point index.

If a student suspended because of academic dishonesty should be readmitted, he may be required to repeat for grade all courses for which a disciplinary grade has been recorded, and both the grade earned on repetition and the disciplinary "Failure—Academic Dishonesty" grade will be employed in computation of the quality-point index.

PROBATION

A student who fails to maintain a quality-point index of at least 2.00 is placed on probation. He remains on probation as long as his index is below 2.00, or until his probation is removed by the Committee on Scholarship.

SUSPENSION

A student on probation who fails to raise his index to 2.00 within the time specified may be suspended. A student who fails one-half or more of the minimum of 16 semester hours may be suspended.

A student suspended for poor scholarship may, within ten days, appeal his case to the Committee on Scholarship through the Dean. If the case appears to be remediable and the student seems likely to improve in his scholarship, the Committee may readmit him on probation. A student denied readmission may again, after the lapse of a calendar year, petition the Committee through the Dean for readmission. A student suspended twice will not be readmitted.

WITHDRAWAL

Withdrawal from a course or from the University, *without academic or financial penalty*, requires the permission of the Dean. Permission to withdraw from the University will not be granted a student who does not have a clear financial record.

Withdrawal between the last working day* in October and the end of the fall semester and between the last working day* in February and the end of the spring semester is permitted only in exceptional cases.

All charges for courses dropped without the approval of the Dean must be met by the student. Reporting the dropping of a course to an instructor does not effect its discontinuance.

CHANGES IN PROGRAM OF STUDIES

Changes within the School

A student may not change or drop courses (see "withdrawal", above) or change his status to that of auditor except with the approval of the Dean, upon presentation of adequate reasons for such changes.

Change from one section to another of the same course may be made with the approval of the Dean and the department concerned.

Change from one major subject to another within the same college or school may be made with the approval of the Dean. All requirements of the course of study to which the change is made must be met.

Transfer within the University

Transfer from one college, school, or division to another may be made only with the approval of the deans concerned. Application for transfer must be made to the Director of Admissions on the form provided by his office.

Students wishing to transfer from the Division of University Students to the School of Education should note that a maximum of 15 semester hours will be accepted in transfer.

* The University work week is Monday through Friday, inclusive.

In order to provide degree candidates with proper academic counsel and the benefits of integrated programs of study, the faculties of the various colleges and schools have established minimum residence requirements and regulations with regard to supervision of the work done in the student's major field. In addition, various special regulations regarding course sequence, selection of electives, and advisory approval of programs apply in particular curricula. Students transferring within the University are advised to study carefully the graduation requirements and to note that in all undergraduate divisions 30 semester hours including *at least 12 semester hours in the major field, must be completed in residence* in the school or college from which the degree is sought. Upon transfer the student should consult the dean concerned and understand clearly the requirements he must fulfill.

CREDIT

Credit is given only after registration for a course and satisfactory completion of the required work.

On request the Registrar will issue to undergraduate degree candidates a balance sheet showing the amount of work completed.

In special instances, a person who has been admitted to the University may be registered, with the permission of the instructor, as an "auditor" in a class (no academic credit). An auditor is not required to take active part in the exercises or to take examinations. A student who takes a course as an auditor may not take the same course later for credit.

TRANSCRIPTS OF RECORD

Official transcripts of student records will be issued on request of the student or former student. A fee of one dollar is charged for each transcript. No certificate of work done will be issued for a person who does not have a clear financial record.

SUMMER SCHOOL CREDIT

A student who plans to attend summer school sessions at another institution with the intention of having credits so obtained apply toward graduation from this University must first secure the written approval of the Dean. In no event will such credits be recognized to an amount in excess of that which might be earned in a similar period in this institution.

GRADUATION REQUIREMENTS

To be recommended for graduation a student must have met the admission requirements of the college or school in which he is registered, completed satisfactorily the scholarship, curriculum, residence, and other requirements for the degree for which he is registered, and be free from all indebtedness to the University.

Application for Graduation

It is the student's responsibility to file an application for graduation in the Office of the Registrar at the time of registration for the last semester or summer session of the senior or final year. Students expecting to complete requirements for degrees during the Summer Sessions must apply for graduation as a part of registration for the Summer Sessions.

Scholarship

The undergraduate student must maintain a quality-point index of at least 2.00.

Candidates for the Master's degree, the Advanced Professional Certificate, and the degree of Education Specialist, must obtain at least a grade of *Satisfactory* (B level) on each course of the required minimum graduate program and must maintain a quality-point index of at least 2.50 on all prerequisite courses.

Curriculum

Curriculum requirements for the Bachelor's degrees are stated on pages 9-27; for the Master's degree, on pages 28-31; for the degree of Education Specialist, on pages 32-33.

Residence

Bachelor's and Master's candidates must complete a minimum of one year or 30 semester hours in residence. Not more than 9 hours of this requirement may be satisfied by off-campus courses. Summer work may be counted in residence, but in no case may the period of residence aggregate less than thirty weeks. Unless special permission is granted by the Dean to pursue work elsewhere, the work of the senior or final year must be completed in residence.

Advanced Professional Certificate candidates must take a minimum of 18 hours on campus at this University.

Education Specialist candidates must take a minimum of 21 hours on campus at this University.

Degree candidates are expected to maintain continuous residence by registering for at least one course in each of two of the three terms (fall, spring, summer). Candidates who are unable to enroll for a course but wish to use the library facilities and consult staff members may, with the permission of the Dean, register "in residence" by paying the residence fee. Candidates, who for reasons beyond their control, must temporarily discontinue their studies may be granted leave of absence for one or two terms, on petition to the Dean's Council.

National Teacher Examinations

All candidates for the Bachelor of Arts degree in the School of Education are required to take the National Teacher Examinations at one of the regularly scheduled dates—December, March, July, or October. Candidates expecting to graduate in June should take the examinations the **previous December or March**; those expecting to graduate in February, the **previous July or October**. Students expecting to complete degree requirements during the Summer Sessions should take the examinations in March or July.

Students will receive individual reports of test scores and may avail themselves of the regular transcript services of the Educational Testing Service. A copy of test scores must be forwarded to the School of Education.

Each senior required to take the National Teacher Examinations must register for them in the **Office of the Dean** at least thirty days prior to the date of the administration of the examinations. Details concerning time, place, registration, and fees may be obtained in the Office of the School of Education.

Thesis or Dissertation

A thesis or dissertation submitted in partial satisfaction of requirements for the Master's or Doctor of Education degrees must be presented in its final form to the Dean no later than the date specified in the Calendar. Three complete copies of each are required. It is the responsibility of the candidate for a graduate degree to obtain from the Dean a printed copy of the regulations governing the styling and reproduction of the thesis or dissertation, which are rigidly enforced.

Accepted theses and dissertations, with accompanying drawings, become the property of the University and are deposited in the University Library, where the duplicate copies are bound and made available for circulation. Permission to publish or adapt material in them must be secured from the appropriate Dean.

Attendance and Conduct

The University reserves the right to refuse to confer a degree upon a candidate whose attendance or conduct has been unsatisfactory.

Graduation in Absentia

Application for graduation in *absentia* must be submitted to the Dean.

HONORS

With Distinction

In all undergraduate divisions of the University the degree may be conferred "with distinction", at the discretion of the Faculty, if a student attains a quality-point index of 3.50 or higher on all work taken at this institution. To be eligible for this honor a student must have completed at this institution at least one-half of the work required for the degree.

Special Honors

Special honors may be awarded by the Faculty to any member of the graduating class for outstanding achievement in the student's major field of work on recommendation of the major department, under the following regulations:

1. The student must have his candidacy for special honors approved by the faculty member representing the major department or field not later than the beginning of the senior year.
2. The student must meet such other conditions as may be set at the time his candidacy is approved.
3. No student will be awarded special honors unless he has a quality-point index of at least 3.00 on all work taken at this institution.
4. To be eligible for honors a student must have completed at this institution at least one-half of the work required for the degree.

THE LIBRARY

A student registered in the University is entitled to the reference use of the University Library. The Student Identification Card, issued upon the payment of fees, must be presented as identification.

Library books, with the exception of those in the Law and Medical collections, may be drawn for home use for a period of two weeks. Any book which does circulate is subject to recall by the Librarian at any time. Reserve books and periodicals for collateral reading must be used in the reading rooms when the Library is open. With special permission they may be drawn for overnight use when the Library closes. A fine of twenty-five cents will be charged for the first hour or fraction of an hour and five cents for each hour or fraction thereafter that a reserve book is overdue. Grades of a student will be withheld until his library record is clear.

HOURS

The University Library is open from 9:00 a.m. to 10:00 p.m. each class day (Saturday 9:00 a.m. to 5:00 p.m.), and from 2:00 to 6:00 p.m. on Sunday.

RIGHT TO DISMISS STUDENTS

The right is reserved by the University to dismiss or exclude any student from the University, or from any class or classes, whenever, in the interest of the student or the University, the University Administration deems it advisable to do so.

RIGHT TO CHANGE RULES

The University and its various colleges, schools, and divisions reserve the right to modify or change requirements, rules, and fees. Such regulations shall go into force whenever the proper authorities may determine.

PROPERTY RESPONSIBILITY

The University is not responsible for the loss of personal property in any University building. A "Lost and Found" Office is maintained in the Student Union.

Fellowships, Scholarships, Prizes, Financial Aid

GRADUATE ASSISTANTSHIPS, FELLOWSHIPS, AND SCHOLARSHIPS

Unless otherwise specified, a letter of application should be submitted not later than March 1 preceding the period for which the award is to be made. It should be directed to the chairman of the department or the dean of the school concerned and addressed to The George Washington University, Washington, D. C. 20006. Admission to graduate study is a prerequisite for consideration.

Graduate Teaching Assistantships.—Open in various departments of instruction to candidates for the Master's degrees. Each graduate teaching assistant renders a designated unit of service to his major department of instruction, and receives, depending upon his teaching or laboratory assignment, up to \$2,200 on a nine-month basis.

plus tuition and laboratory fees for the program of studies which the duties of his assistantship permit him to carry. Tuition and laboratory fees may not exceed \$730. Application should be made to the chairman of the department of instruction concerned.

Resident Assistantships for Graduate Women.—Available to single women enrolled in any field of graduate study. Each assistant receives a stipend of \$450 on a nine-month basis, tuition and laboratory fees (not to exceed \$1,100) for whatever schedule of study her duties permit her to carry, and a furnished shared apartment in a residence hall. Resident assistants serve as advisers to the residence hall governing councils and student committees; work with students to develop programs that extend the academic climate into the residence hall; participate in the general administration of the residence hall. Application should be submitted to the Office of the Dean of Women no later than April 1.

University Teaching Fellowships.—Assigned for the academic year to the various departments of instruction. The applicant is expected to be a prospective candidate for a Doctoral degree in the general field of his future doctoral study. Each teaching fellow receives an annual stipend (on a nine-month basis) of up to \$2,200 plus tuition and laboratory fees for whatever schedule of study or research his fellowship duties permit him to carry. Tuition and laboratory fees may not exceed \$600. Stipends vary with the work load of the individual teaching fellow. Normally a University teaching fellow renders half-time service in classroom or laboratory assignments to the department of instruction directing his doctoral study. Application should be made to the chairman of the department of instruction concerned.

Special Program in Elementary Teacher Education.—A program supported by The Ford Foundation. For details, see pages 35-36.

SCHOLARSHIPS AND PRIZES

The following scholarships and prizes are limited to students in the School of Education. The University offers many others which are open to School of Education students. A special bulletin containing a complete list and full information may be obtained from the Chairman of the Committee on Scholarships, The George Washington University, Washington, D. C. 20006.

Scholarships are awarded for the academic year unless otherwise specified and are credited in equal parts for each semester. Each holder must carry a full schedule of academic work (fifteen semester hours or, in the professional schools, the full prescribed schedule) during the period for which the scholarship is awarded.

A letter of application should be submitted on or before April 1 for the following academic year and, unless otherwise specified, should be addressed to the Chairman of the Committee on Scholarships, The George Washington University, Washington, D. C. 20006. Awards are made during the month of April. Most scholarships begin with the fall semester.

Special Program in Elementary Teacher Education (1963).—A program supported by The Ford Foundation. Grants-in-aid, in amounts justified by need, may be secured to cover the tuition expenses of this program, which prepares outstanding graduates of accredited liberal arts colleges for teaching in elementary schools. For details, write to Program Director, Special Program in Elementary Teacher Education, The George Washington University, Washington, D. C. 20006.

Mildred Green Memorial Scholarship Fund (1959).—Established by Alpha Theta Chapter of Pi Lambda Theta, provides annual tuition aid for a student in the School of Education, upon the recommendation of the donor. Application forms are available in the Scholarship Office.

Anna Spicker Hampel Scholarship (1949).—Established by Evelyn Hampel Young in memory of her mother, provides tuition aid for a young married woman in the School of Education or Columbian College of Arts and Sciences.

Elizabeth V. Brown Scholarship Fund (1925).—A Columbian Women Scholarship memorial fund of \$1,200 for tuition aid, established by the College Women's Club of Washington, D. C., and restricted to the School of Education.

Gamma Phi Beta Sorority Scholarships (1962).—Two scholarships covering tuition for one 3-semester-hour course in Education for the Gifted offered annually to certified teachers when the appropriate course is available. Direct inquiries to the Dean of the School of Education.

Phi Delta Kappa Prize.—Awarded annually by Beta Gamma Chapter to the outstanding senior man in the teacher education program in the School of Education.

Pi Lambda Theta Prize.—Awarded annually by Alpha Theta Chapter to the outstanding senior woman in the teacher education program in the School of Education.

FINANCIAL AID

Home Economics Loan Fund.—A fund of \$832, given by the D. C. Home Economics Association, is available for loans to senior girls majoring in Home Economics.

National Defense Student Loan Fund.—This fund is available to full-time undergraduate and graduate students who are in need of financial assistance. Priority is given those applicants who express a wish to teach in elementary or secondary schools, and whose academic background indicates a superior capacity or preparation in science, mathematics, engineering, or a modern foreign language. After application for admission to the University has been completed, application on forms prescribed for this loan fund must be filed in the Office of the Vice President and Treasurer no later than (1) for the fall semester—June first for students currently registered in the University and July first for entering students; (2) for the spring semester—November fifteenth; (3) for the Summer Sessions—May first.

United Student Aid Funds.—This fund is available to full-time students who have completed their freshman year and are in need of financial assistance. Monthly repayments begin after a student finishes either undergraduate or graduate education. After application for admission to the University has been completed, application on forms prescribed for this loan fund must be filed in the Office of the Vice President and Treasurer no later than (1) for the fall semester—June first for students currently registered in the University and July first for entering students; (2) for the spring semester—November fifteenth; (3) for the Summer Sessions—May first.

For complete information on other Fellowships, Scholarships, Prizes, Financial Aid, request the Special Information on the subject, which is available in the Office of the Committee on Scholarships, The George Washington University, Washington, D. C. 20066.

Student Services and Activities

RESIDENCE HALLS

Complete information concerning the University's residence halls is available at the Office of the Dean of Men or the Office of the Dean of Women, The George Washington University, Washington, D. C. 20006.

Information concerning off-campus housing near the University may be obtained at the Office of the Dean of Men. The reservation of rooms in private houses must be made by students.

Admission to the University does not include a room reservation. A separate application for a room should be made well in advance (for the fall semester by May first, for the spring semester by January first). Rooms are leased for the academic year, and a deposit of \$100, which is credited toward the fall semester room charge, is required. If notice of withdrawal or cancellation of room reservation is received prior to June 1, \$30 of the deposit will be refunded. Room rentals are payable in advance by the semester.

RESIDENCE HALL RATES FOR TWO SEMESTERS—1964-65

For MEN:	Room and Food Service	Room only
Adams Hall		
double room	\$800	—
triple room	750	—
Crawford Hall	900	—
Calhoun Hall	900	\$400
Madison Hall	920	420
Wellington Hall	820	320
For WOMEN:		
New Residence Hall	\$950	—
Strong Hall		
double room	950	\$450
single room	1,055	545

FOOD SERVICE

Residents of the new Women's Residence Hall, Crawford and Adams Halls participate in a room and food service plan. The food service is optional for the residents of Calhoun, Madison, Strong, and Wellington Halls. Meals may be taken either at the new Women's Residence Hall or in the Residence Hall during room at the Student Union. Well-balanced meals are served on a five-day seven days per week (20 meals). Food service payment does not cover University holidays or vacation periods.

All unmarried women students under twenty-two years of age and enrolled for twelve or more hours of residence work during the fall or spring semester or six or more hours during a summer session are required to live in the University residence halls or at home with their parents. Upon written approval of their parents and the

permission of the Dean of Women, freshman women may live with immediate relatives and upperclass women may live with contemporaries of their parents. Under no circumstances may an unmarried woman student under twenty-two years of age taking a full academic program live in an apartment with her contemporaries.

All unmarried freshman men under twenty-one years of age and enrolled for twelve or more hours of academic work during the fall or spring semester or six or more hours during a summer session are required to live in the University residence halls, or at home with their parents. In exceptional cases permission to live elsewhere may be given a student by the Dean of Men.

HEALTH SERVICES

The Health Services Staff assists students with their medical needs by advice and treatment, by proper referral when necessary, and by cooperation with other physicians. For medical emergencies and health consultations there is, on the campus, a Student Health Clinic open from 9 A.M. to 5 P.M., Monday through Friday, during the academic year and Summer Sessions, with physician and nurse in attendance. There is also a rest room for women, with a graduate nurse in charge. For night and week-end emergencies, students may go to the emergency room of the University Hospital for treatment. The basic fee for this visit will be paid by the Health Services, and all other charges will be the responsibility of the student. This arrangement is for emergency care only.

Medical privileges include: (1) physical examination of all students who are applicants for courses in Physical Education;* (2) three visits in any one illness by a member of the Health Services Staff, office or residence (District of Columbia); (3) hospitalization, including board and nursing, in the University Hospital for not more than one week during any twelve-month period—the necessity to be determined by the Director of Health Services.† All additional hospital charges for operating room, anesthetics, laboratory, X-ray, medications, or any special services must be paid by the student. Expenses incurred for examinations and treatment by specialists, such as eye refraction and provision of glasses; orthopedic examinations and application of cast or other appliance; laboratory and X-ray work; and surgical operations must be paid by the student.

This medical benefit applies only to illness or disability incurred while currently enrolled in the University. It does not apply to illness or disability incurred between the last day of examinations for a semester or summer session and completion of registration for the next semester or summer session.

The student is allowed, if he so desires, to engage physicians and nurses of his own choice, but when he does so he will be responsible for the fees charged.

Rules: (1) The Director of Health Services is empowered to limit or deny the medical benefits where, in his discretion, a student has, by his misconduct or breach of the rules of the University, made himself ineligible; (2) the Director of Health Services has authority to determine the necessity and length of hospitalization; (3) a student not currently enrolled or one who has severed his connection with the University is ineligible for medical benefits; (4) a student intending to train for an athletic team is required to pass a thorough examination at the beginning of each semester.

* A charge for a special physical examination is made by the University if a student fails to appear for a physical examination during the period set for this purpose.
† See Rule 137 for exception.

ter; (5) hospitalization is not available to those students availing themselves of other hospitalization coverage for the same illness.

The University is not responsible for injuries received in intercollegiate or intramural games, or in any of the activities of the physical education departments.

HONOR SOCIETIES AND PROFESSIONAL ORGANIZATIONS

Alpha Pi Epsilon.—An honorary Home Economics Sorority whose purposes include the improvement of scholarship and leadership standards among Home Economics students.

Phi Delta Kappa.—An international professional fraternity for men in Education, to promote fellowship based on common interests and ideals which make possible group action for the development of free public education through research, service, and leadership.

Pi Lambda Theta.—A national honorary association for women in Education, dedicated to the conception of education as a profession.

Student National Education Association.—Provides members with opportunities for developing personal and professional competency through an understanding of the history, ethics, and programs of the organized teaching profession.

Courses of Instruction

The University reserves the right to withdraw any course announced.

EXPLANATION OF COURSE NUMBERS

First-group courses.—Courses numbered from 1 to 100 are planned for students in the freshman and sophomore years. With the approval of the adviser and the Dean, they may also be taken by juniors and seniors. In certain instances, they may be taken by graduate students to make up undergraduate deficiencies or as prerequisite to advanced courses, but they may not be credited toward a higher degree.

Second-group courses.—Courses numbered from 101 to 200 are planned for students in the junior and senior years. They may be credited toward higher degrees only when registration for graduate credit has been approved before the mid-point of the course by the Dean of the School of Education and by the officer of instruction concerned, and when the completion of additional work has been certified by the officer of instruction.

Third-group courses.—Courses numbered from 201 to 300 are planned primarily for graduate students. They are open, with the approval of the officer of instruction, to qualified seniors.

INDICATION OF THE AMOUNT OF CREDIT

The number of semester hours of credit given for the satisfactory completion of a course is indicated in parentheses after the name of the course. Thus, a year course giving three hours of credit each semester is marked (3-3), and a semester course giving three hours of credit is marked (3).

Department of Education

Courses offered by the Department of Education are of two types: those designed for the preservice education of candidates and those planned for the in-service education of teachers, counselors, and administrators.

Preservice courses devote two or three hours a week to lecture and discussion supplemented by a minimum of two hours a week of related field work. A clinical approach to the study of educational problems is used—lectures and discussions revolving around observed practices.

In-service courses meet once a week for a two-hour period. Class work is supplemented by extensive reading assignments, the preparation of reports, and field work. A student enrolled in one of these courses should plan to devote not less than seven hours a week, exclusive of class time, to the work of the course.

Ample opportunity is provided to study teaching or administrative problems of special interest. To enable students to consult with instructors regarding individual problems, a conference hour is scheduled immediately before or after the class period.

Only the courses designed to provide professional information and skills are listed below. For courses needed for general education or teaching-field preparation, see the catalogue for the Division of University Students. In addition to courses offered in the Department of Education a number of professional courses for teachers are offered in the departments of Mathematics, Psychology, Speech, and Statistics. These are listed below together with courses offered by the Department of Education.

Whenever possible, the exact hour of class meeting is stated. Hours for classes not yet scheduled may be found in the Schedule of Classes for the semester concerned.

A Reading Clinic

Coleman and Staff
Diagnosis of reading difficulties; individual or group lessons without academic credit. Fee: for individual diagnosis, \$45; for individual instruction, \$6 a lesson; for semi-individual instruction, \$5 a lesson; for instruction in small groups with common reading difficulties, \$3.75 (\$3.25 for students currently enrolled in the University).

SECOND GROUP

109. *Human Development, Learning, and Teaching* (1) McIntyre, McCune
Lecture (2 hours), conference (1 hour), field work (1 hour). For the general student as well as for prospective teachers. Principles of effective teaching based on an understanding of human development and the nature of learning. Prerequisite: Psychology 30 or 31. Fall and spring semester. A—M 1110-1 pm, section B—W 4-6 pm, section C—Th 6-8 pm, conference and field work as arranged. 1994 (McIntyre, Lect.)

111. *Methods in Elementary Education* (12) McIntyre and Staff
For seniors in the elementary school curriculum. Methods, materials, appraisal, and field experiences in elementary schools. Problems and procedures in teaching the language arts (including reading, literature for children, oral and written expression, spelling, and handwriting), arithmetic and science, social studies. Planning units of work, general classroom procedures, and evaluation of pupil progress. (Observation and

participation two mornings a week. Prerequisite: Education 108 and 123. (Fall—MTWThF 9:10-12 am.)

112 *Educational Measurement* (3)

Westerlund, Williams

Scope, needs, services to students, selection and construction of teacher-made tests, interpretation of tests for evidence purposes. Prerequisite: Education 108 and 123.

(Fall and spring: section A—T 3:10-5 pm, section B—W 3:10-5 pm, section C—M 8:10-10 pm; summer 1964 (McCauley).)

113 *Elementary School Art* (3)

Nowlin

For undergraduates in the elementary school curriculum. Materials and methods. Prerequisite: Psychology 1 and 22, or 121. Material fee, \$4.50. (Fall and spring: lecture and laboratory—M 6:10-9 pm, field work—as arranged; summer 1964 (Crump).)

114 *Elementary School Music* (3)

Mitchell

For undergraduates in the elementary school curriculum. Materials and methods. Prerequisite: Psychology 1 and 22, or 121. (Fall and spring—Th 6:10-8 pm, field work (2 hours)—as arranged; summer 1964.)

115 *Teaching of Reading in the Elementary School** (3)

Parker

A basic course in methods, techniques, materials, and activities essential to a good elementary school reading program. Prerequisite: Education 108 and 123 or teaching experience. (Spring—W 6:10-8 pm, field work (2 hours)—as arranged; summer 1964.)

116 *Elementary School Social Studies** (3)

Trundle

For teachers. Content, methods, materials, and activities essential in the elementary school curriculum. Prerequisite: Education 108 and 123 or teaching experience.

(Fall—W 6:10-8 pm; summer 1964.)

117 *Elementary School Science** (3)

St. Cyr

For teachers. Content, methods, materials, and activities essential in the elementary school curriculum. Prerequisite: Education 108 and 123 or teaching experience.

(Spring—T 6:10-9 pm, field work (2 hours)—as arranged; summer 1964.)

120 *Elementary School Arithmetic** (3)

St. Cyr

For teachers. Content, methods, materials, and activities essential in the elementary school curriculum. Prerequisite: Education 108 and 123 or teaching experience.

(Fall—T 6:10-8 pm, field work (2 hours)—as arranged; summer 1964.)

123 *Society and the School* (3)

St. Cyr and Staff

Lecture (2 hours), conference (1 hour), field work (2 hours). For the general student as well as the prospective teacher. Historical and social development of education at local, national, and international levels; cooperation of the school with other community agencies; functions of school personnel. (Fall and spring: lecture section A—W 1:10-3 pm, section B—M 3:10-5 pm, section C—T 6:10-8 pm, conference and field work—as arranged; summer 1964.)

128 *Children's Literature** (3)

Walker

For teachers. Exploring and evaluating the newer books for children and the children's classics, understanding the contribution of literature to child development, appreciating children's original expressions. Prerequisite: Psychology 1 and 12. (Spring—M 6:10-8 pm, field work (2 hours)—as arranged; summer 1964 (McIntyre).)

131 *Principles and Methods of Secondary School Teaching* (3)

Boswell, Myers,
Stallings

For seniors in the secondary school curriculum. Course, unit, and lesson planning; practical techniques used in connection with motivation, the assessment, group procedures, directing study, individual differences, evaluation, clerical routines, discipline, the homeroom, activity sponsorship, public relations. Prerequisite: Education 108 and 123. (Fall: section A—MW 3:30-5 pm, section B—Th 12:30-2 pm; spring—MW 4:30-6 pm. Field work—as arranged.)

* This course may not be taken by students who have completed or plan to enroll in Education 111.

- 134 Student Teaching in Secondary Schools (6 to 9)** Boswell and Staff
For seniors in the secondary school curriculum. Sections A, B, and C are for full-time academic majors. Section D is for physical education majors (Myers, Stallings). Student teaching fee, \$50. Admission by permission of the instructor. Prerequisite: Education 108 and 123. (134A: fall—as arranged; 134A, 134B, 134C, and 134D: spring—as arranged.)
- 135 Student Teaching in Elementary Schools (9)** McIntyre, Rashid
For seniors in the elementary school curriculum. Student teaching fee, \$50. Admission by permission of the instructor. Prerequisite: Education 108 and 123. (Fall and spring—as arranged.)

SPECIAL METHODS COURSES*

To be elected in the senior year after substantial preparation in the teaching fields concerned by the students in the secondary school curriculum. Course requirements and hours of credit vary with license requirements. Practices of successful teachers are studied, and actual teaching content as found in current texts and courses of study is reviewed.

- 136 Teaching English in Secondary Schools (2 to 4)** Williams
Prerequisite*: 18 semester hours in English. (Spring: lecture—M 6:10-8 pm, field work (2 hours)—as arranged; summer 1964.)
- 137 Teaching Speech (2 to 4)** Kosh
Prerequisite*: 18 semester hours in speech or the permission of the instructor. (Spring: lecture—T 8:10-10 pm, field work (2 hours)—as arranged.)
- 138 Teaching Social Studies in Secondary Schools (2 to 4)** Boswell
Prerequisite*: 24 semester hours of social studies. (Spring: lecture—Th 8:10-10 pm, field work (2 hours)—as arranged; summer 1964.)
- 139 Teaching Art in Secondary Schools (2 to 4)** Teller
Prerequisite*: 24 semester hours of Art. (Spring: lecture and laboratory—TTh 5:10-7 pm.)
- 140 Teaching Mathematics in Secondary Schools (2 to 4)**
Prerequisite*: Mathematics through calculus. (Spring: lecture—Th 6:10-8 pm, field work (2 hours)—as arranged.)
- 141 Teaching Latin* (3)** Gerber
Consideration of objectives in teaching Latin; construction of courses of study; techniques of motivation, presentation, and drill; areas of enrichment. Designed for both junior and senior high school teaching. (Summer 1964.)
- 142 Teaching Music in Secondary Schools (2 to 4)**
Prerequisite*: 24 semester hours of Music. (Spring: lecture and laboratory to be arranged.)
- 144 Teaching Science in Secondary Schools (2 to 4)** Eller
Prerequisite*: 24 to 40 semester hours of science. (Spring: lecture—F 6:10-8 pm, field work (2 hours)—as arranged.)
- 146 Teaching Foreign Languages (2 to 4)** McSpadden
Prerequisite*: 18 semester hours of one foreign language. (Spring: lecture—T 5:10-7 pm, field work (2 hours)—as arranged.)
- 150 Teaching Business Subjects (2 to 4)** Transue
Prerequisite*: 30 semester hours of business education. (Spring—S 9:10-11 am.)

* Prerequisite to all special methods courses: Education 108, 123, and 141. Additional prerequisites are stated under each course.

- 180 *Introduction to the Education of Exceptional Children* (3) Amos
A survey course to acquaint prospective teachers of the retarded with the various types and degrees of mental, physical, social, and emotional deviations seen in the school population and to help them to accommodate such children in a school program. Prerequisite: Education 100 and 123 or the equivalent and permission of the adviser. (Fall—W 8:10-10 pm.)
- 181 *Nature and Needs of Exceptional Children I—the Mentally Retarded* (3) Fournere
Nature and needs of children with varying degrees of retardation. Causation and diagnosis of retardation and its psychological and sociological implications. Principles of learning with respect to teaching retarded children. Deviations of behavior in the mentally retarded. Prerequisite: Education 100 and 123 or the equivalent and permission of the adviser. (Fall—M 4:10-6 pm.)
- 185 *Teaching Younger Mentally Retarded Children (Nursery and Elementary School Age)* (3) Cornish
Educational methods and curriculum for the mentally retarded at different levels of maturity within the scope of the course. Organization and planning of instructional activities; selection and preparation of materials and equipment; community resources; records and reports; health and welfare services. Prerequisite: Education 180 and 181 or the equivalent and permission of the adviser. (Spring—M 4:10-6 pm.)
- 186 *Teaching Older Mentally Retarded Children (Junior and Senior High School Age)* (3) Botwin
Methods and curriculum for the mentally retarded at different levels of maturity within the scope of the course. Organization and planning of instructional activities; selection and preparation of materials and equipment; community resources; records and reports; health and welfare services; occupational training; employment opportunities; job analyses; citizenship education. Prerequisite: Education 180 and 181 or the equivalent and permission of the adviser. (Spring—W 4:10-6 pm.)
- 189 *Practicum in Teaching the Mentally Retarded* Botwin, Fournere, and Staff
(6 to 9)
Supervised student teaching in classrooms for the mentally retarded under the direction of a qualified teacher and the supervision of the University staff. A minimum of 150 clock hours is required for 6 semester hours of credit; 225, for 9 hours. Prerequisite: Education 180 and 181. (Spring—as arranged.)

THIRD GROUP*

- 201 *Seminar: Foundations of Education* (3) The Staff
Designed to refresh previous study and to give additional depth of knowledge in the historical, philosophical, sociological, psychological, evaluation, measurement, and research foundations of education; and to guide study for the Master's degree comprehensive examination in these areas. (Fall—M 8:10-10 pm; spring—T 8:10-10 pm.)
- 203-4 *Comparative Education* (3-3) Kempfer
Comparison of foreign educational systems with those of the United States, particularly those of Russia, West Germany, Denmark, Switzerland, France, the British Isles, Canada, and Australia. (Academic year—Th 8:10-10 pm.)
- 205-6 *The Curriculum?* (3-3) St. Cyr
For experienced teachers. *First half*: curriculum functions and issues; comparison of curriculum patterns. *Second half*: principles and procedures in curriculum development; group consideration of student problems. (Academic year—Th 6:10-8 pm.)
- 207 *Curriculum Materials?* (3) St. Cyr
For experienced teachers. Construction of courses of study, resource units, classroom teaching aids, and inexpensive materials; direct application to students' own situations. (Summer 1964.)

* A degree from an accredited institution is prerequisite to all third-group courses.
† Prerequisite: adequate professional preparation

- 208 *Human Development, Learning, and Teaching* (3) Lang
Lecture (2 hours), conference (1 hour), field work (2 hours). For graduate students. Principles of effective teaching based on an understanding of human growth and development and the nature of learning. Prerequisite: Psychology 1 and 2, or 121. (Lecture, fall and spring—M 6:10-8 pm, conference and field work—as arranged.)
- 209 *Child Growth and Development* (3) Rashid
An interdisciplinary approach to child development is emphasized. Special attention is given to the analysis, interpretation, and practical implications for instruction of significant research in the various disciplines which have contributed most to the knowledge of child development. (Fall—W 6:10-8 pm.)
- 210 *Adolescent Growth and Development* (3) Rashid
An interdisciplinary approach to adolescent growth and development is emphasized. Particular attention is given to the analysis, interpretation, and practical implications for instruction of significant research in the various disciplines which have contributed most to the knowledge of the adolescent. (Spring—W 6:10-8 pm.)
- 212 *Educational Measurement* (3)
Basic measurement techniques; construction, selection, administration, and interpretation of objective and essay-type examinations; statistical analysis of test results; laboratory experiences in the use of test instruments. (Fall—Th 8:10-10 pm.)
- 213-14 *History of Education* (3-3) Wilson
First half: the European backgrounds of American education. *Second half:* the evolution of the American school system. (Academic year—T 6:10-8 pm.)
- 215 *Education of Exceptional Children** (3)
For classroom teachers. A survey of current problems in the education and guidance of exceptional pupils. Nature and needs of those physically, mentally, or emotionally handicapped; needs of the gifted. Resources for help in correction, diagnosis, therapy, education, and guidance. (Not offered 1964-65.)
- 216 *Education of Slow-learning Children** (3) Amos
Identification, nature, and needs of slow-learning elementary and junior high school children. Emphasis on diagnosis and treatment of learning difficulties. (Summer 1964.)
- 217-18 *Philosophy of Education** (3-3) Westerlund
First half: designed to help students formulate a personal philosophy of education. *Second half:* social foundations of education—a study of the forces that shape the policies and offerings of the school. (Academic year—W 8:10-10 pm; summer 1964—Education 218 (3).)
- 219 *Elementary School Classroom Procedures** (3) Baker
Current classroom practices with particular emphasis on ways of planning, unit teaching, techniques in discipline; individual and group evaluation techniques, resources for learning, providing for individual differences. (Fall—F 5:10-7 pm.)
- 221 *Early Childhood Education** (3) McIntyre
The philosophy and principles underlying the teaching of four- to seven-year olds. Emphasis is on organization, equipment, methods, and materials for promoting the growth needs of young children. (Summer 1964.)
- 223-24 *Reading Problems** (3-3) Coleman
For experienced teachers. Study of reading difficulties on elementary and secondary school levels; classroom and clinical procedures in solving reading problems. (Academic year—W 6:10-8 pm; summer 1964—Education 223 (3).)
- 226 *Reading in Secondary Schools* (3) Redding
For experienced teachers. Consideration of special problems in the content areas, diagnostic and corrective techniques and materials for the classroom teacher, reading improvement programs. (Spring—T 6:10-8 pm.)

* Prerequisite: adequate professional preparation.

- 227 *Basic Issues in Elementary Education* (3) Baker
A consideration of basic issues in the purposes, organization, and conduct of elementary education. Emphasis on the philosophical and psychological roots of fundamental assumptions as they relate to classroom practices. (Summer 1964.)
- 228 *Instructional Areas in Elementary Education* (3) Baker
Critical appraisal of the objectives, organization, content, and teaching methods in the language arts, arithmetic, social studies, science, arts and crafts, health and physical education. (Spring—5:10-7 pm.)
- 229 *Administration of Elementary Education* (3) Carroll
For experienced teachers and administrators. Administration as a means of achieving instructional objectives, organizing learning and teaching activities, handling supplies and equipment, maintaining the building, and integrating school and community life. Emphasis upon guide lines to action. (Fall—Th 6:10-8 pm; summer 1964.)
- 231 *Secondary School Classroom Procedures** (3) Suber
Survey of current classroom practices with particular attention to selected topics such as teacher-pupil planning, group procedures, pupil security, initiatory and culminating activities, individual and group evaluation techniques, teaching aids, etc.; review of recent literature. (Fall—Th 8:10-10 pm; summer 1964.)
- 233 *Audio-visual Education** (3) Kubalak
Lecture (2 hours), laboratory (1 hour). Role of audio-visual materials in learning; selection, evaluation, and use of materials; administrative problems in the care, operation, maintenance, and use of audio-visual materials and equipment. Material fee, \$7. (Spring—F 6:30-9:30 pm; summer 1964.)
- 241 *Education of the Gifted** (3) Amos
For classroom teachers. Nature and discovery of giftedness, provisions for the gifted in regular classes, experimental projects. (Spring—T 8:10-10 pm.)
- 243 *Human Relations in the Classroom** (3) Marinaecio
Principles and practices involved in interpersonal relationships between learner and teacher and among learners. (Summer 1964.)
- 244 *Tests and Measurements for Exceptional Children* (3) Botwin
Materials and methods of psychological, psychometric, and educational tests used in diagnosing and securing information concerning exceptional children. Prerequisite: Education 185 and 186 or equivalent, or permission of adviser. (Summer—1965.)
- 245 *School and Community** (3) Angel
The school as an important member of a team of social agencies that builds the community. (Fall—Th 6:10-8 pm; spring—Th 8:10-10 pm; summer 1964.)
- 246 *Guidance and Counseling of the Mentally Retarded* (3) Botwin
Educational, mental, social, and vocational guidance of mentally retarded children. The role of the teacher in parent counseling. Community agencies involved in post-school rehabilitation, guidance, and recreational services for the mentally retarded. Prerequisite: Education 185 and 186 or equivalent, or permission of adviser. (Summer—1965.)
- 247 *Vocational Education** (3) Walsh
Development in the United States; current conceptions, agencies involved, problems, and trends. (Not offered 1964-65.)
- 249-50 *Practicum in Student Personnel Work** (1 to 3-1 to 3)
Supervised practical experience in student personnel services. Admission by permission of the instructor. (Academic year—as arranged.)
- 251 *Guidance in Elementary and Secondary Schools** (3) Detwiler
A survey course; scope; needs; organization of the program; services to students, the instructional staff, and the administration; personnel needed for the program. (Fall—T 6:10-8 pm; spring—W 8:10-10 pm; summer 1964 (McDaniel's).)

* Prerequisite: adequate professional preparation

- 252 *Organization and Administration of Guidance Services* (3) Suber
Designed for guidance directors and supervisors and experienced school counselors who hope to qualify for such positions in the near future. Prerequisite: a minimum of 15 semester hours of approved graduate work in measurement and guidance. (Spring—F 6:10-8 pm; summer 1964 (Wellman).)
- 253 *Analysis of the Individual for Purposes of Counseling* (3) Detwiler
A detailed study of individual analysis techniques with practice in handling such methods. Prerequisite: Education 112 or the equivalent. (Spring—M 6:10-8 pm; summer 1964.)
- 254 *The Junior High School** (3) Root
Purposes, organization, core program, guidance, developing course of study, extra-classroom activities. (Not offered 1964-65.)
- 255 56 *Secondary Education** (3-3) Root
First half: current proposals for the improvement of secondary education. *Second half:* current problems in each of the subject-matter fields. (Academic year—S 9:10-11 am; summer 1964 (Root, Iwamoto).)
- 257 *Occupational and Educational Information* (3) Detwiler
Designed to acquaint vocational and educational counselors with the basic occupational and educational information necessary in counseling. Sources of data and techniques of collecting, analyzing, and disseminating for purposes of guidance. (Fall—M 6:10-8 pm.)
- 258 *Techniques of Counseling* (3) Detwiler
An intensive study of the educational and psychological processes involved in counseling interviews. Specific types of vocational, educational, and personal counseling problems are discussed. Prerequisite: 12 semester hours in testing and guidance, including Education 253 and 257. In exceptional cases Education 253 or 257 may be taken concurrently with 258. (Fall—W 8:10-10 pm; spring—Th 8:10-10 pm; summer 1964.)
- 259 60 *Secondary School Management** (3-3) Johnson
For experienced teachers and administrators with two years of successful teaching in secondary schools. Management planning, execution, and control; criteria of good management; construction of the master schedule; leadership problems incident to the development of new policies and programs. (Academic year—S 9:30 am-3 pm.)
- 261 62 *Practicum in Guidance* (3-3) Detwiler
Supervised practical instruction in school guidance. Prerequisite: graduate work in counseling. Admission by permission of the Chairman of the Department. (Academic year—as arranged.)
- 263 64 *Employee Training* (3-3) Walsh, Root
First half: nature and purpose, review of major programs—orientation, supervisory, apprenticeship, clerical skills, communication. *Second half:* administrative problems and practices, training procedure, coordination with other management functions. Prerequisite: adequate professional preparation or two years of experience in employee training. (Academic year—M 8:10-10 pm.)
- 265 66 *Teaching Secondary School English—Materials.* Williams
Resources, Content (3-3)
A refresher course for teachers of English. Discussion of new approaches to course content. Offered in cooperation with the Departments of English and Speech. *First half:* communication skills—structural linguistics, composition, and speech. *Second half:* American and English literature. (Not offered 1964-65.)
- 267 68 *Teaching Secondary School Social Studies—Materials.* Williams
Resources, Content (3-3)
A refresher course for teachers of the social studies. Discussion of new approaches to

* Prerequisite: adequate professional preparation

course content. Offered in cooperation with the departments of History, Political Science, Geography and Regional Science, Economics, and Sociology and Anthropology. (Academic year—W 6:10-8 pm.)

269-70 *Business Management of Schools I-II** (3-3)

Carroll

First half: Philosophy, responsibilities, and functions of the business management office in public education; institutions; responsibilities of boards of education, superintendents, and central office staffs. *Second half:* planning and financing; building construction, operation, and maintenance; transportation; lunchrooms; purchasing, storing, distribution; accounting and budgetary procedures; depreciation, insurance, and bond issues. (Academic year—T 8:10-10 pm.)

271 *The Teacher and School Administration** (3)

Suber, Carroll

A survey course for teachers and prospective administrators. Education and world affairs, national agencies, role of the state, local administration, school finance, legal controls, school plant, public support, democratic administrative procedures, improving teaching conditions. (Fall—S 9:10-11 am; spring—W 6:10-8 pm; summer 1964.)

272 *The Teacher and School Supervision** (3)

Carroll, Suber

Nature, organization, human relationships, and techniques. (Fall—W 6:10-8 pm; spring—S 11:10 am-1 pm; summer 1964.)

273-74 *Teacher Education** (3-3)

Edelfelt, Darland

First half: aims, objectives, and basic issues; study of outstanding and experimental programs. *Second half:* recruitment and selection, general education, teaching field preparation, professional sequences, laboratory experiences. (Academic year—M 8:10-10 pm.)

275 *School Finance** (3)

Carroll

Educational financial theory, practice, and control, including methods of financing. (Not offered 1964-65.)

276 *Seminar: Public Relations in School Administration** (3)

Carroll

Purposes, gathering materials, disseminating systems, publicity media, public participation in policy making. (Spring—Th 6:10-8 pm; summer 1964.)

277 *Administration of School Personnel** (3)

Carroll

Techniques and problems of administration related to more effective service of staff personnel. (Not offered 1964-65.)

278 *School Law** (3)

Rempelein

Sources and scope of school law; legal rights and responsibilities of teachers, pupils, and taxpayers. Other legal problems of major interest to the group. (Summer 1964.)

279-80 *Adult Education** (3-3)

Holden

First half: current concepts and objectives, agencies involved, programs on all levels—vocational through community. *Second half:* the adult as a learner, the teacher of adults, learning-teaching activities, administration of adult education programs. (Academic year—W 8:10-10 pm; summer 1964—Education 280 (3) (Detwiler).)

281 *Seminar: the Educational System of the Soviet Union* (3)

(Fall—T 8:10-10 pm.)

282 *Seminar: the Educational System of Communist China* (3)

(Spring—W 8:10-10 pm.)

283-84 *Higher Education** (3-3)

Rogers

First half: development, present status, and outlook for American colleges; purposes of higher education, current and projected programs; trends in curriculum, instruction, administration, and evaluation of institutions. *Second half:* priorities in development of college programs; study of curricula in liberal arts and professional fields, relationship of educational services and facilities to the instructional program. (Academic year—T 8:10-10 pm.)

* Prerequisite: adequate professional preparation.

285 Extra-classroom Activities* (3)

Nature and purposes of selected activities—homeroom, clubs, assemblies, school publications, student council, interscholastic contest; particular attention to sponsorship, participation, finance, and evaluation. (Not offered 1964-65.)

286 Introduction to Student Personnel Work (3)

Kirkbride

A basic survey course of student personnel services in American higher education. Personnel work as an integral part of the college program of instruction is stressed, with an introduction being given to the literature of the field. (Fall—T 6:10-8 pm.)

287-88 Clinical Study of Reading Problems* (3-3)

Coleman

For advanced students. Diagnostic and corrective work under supervision of the Reading Center. Each student is expected to diagnose and treat pupils who are retarded in reading. Case studies are presented and criticized. Prerequisite: Education 223-24 or the equivalent. Material fee, \$5 a semester. (Academic year—F 5:10-7 pm.)

289 Supervisory Problems in Reading* (3)

Coleman

For experienced teachers, principals, supervisors, and superintendents. Problems involved in planning, reorganizing, and improving the total reading program, in promoting cooperative effort on the part of the staff toward increasing teaching efficiency. (Not offered 1964-65.)

291 Planning the School Plant (3)

Suber

Selection of sites; evaluation of existing buildings; utilization of present facilities; adaptation to curricular needs; building, operation, and maintenance problems. (Spring—Th 8:10-10 pm.)

293-94 Research (3-3)

The Staff

Individual research under the guidance of a member of the staff. Program and conferences arranged with an instructor. (Academic year—as arranged; summer 1964.)

295 Educational Research Methods and Procedures (3)

McCauley, Westerlund

Required of all candidates for graduate degrees in Education. To be taken early in the student's graduate program. Prerequisite: an elementary course in statistics. (Fall—section A—Th 4:10-6 pm; section B—M 6:10-8 pm; spring—section A—Th 4:10-6 pm; section B—M 8:10-10 pm; summer 1964.)

296 Seminar in Educational Research (3)

McCauley

Designed to help students analyze scientific approaches to problems in education; evaluate the application of research techniques to typical problems; define, organize, and conduct research studies; and prepare proposals for sponsored research. Required of all candidates for the Doctor of Education degree and open, with permission, to candidates for other advanced degrees. Prerequisite: Education 295 or the equivalent. (Not offered 1964-65.)

299-300 Thesis (3-3)

The Staff

Required of all Master of Arts in Education candidates writing Master's thesis. (Academic year—as arranged.)

SPECIAL PROGRAM IN ELEMENTARY TEACHER EDUCATION

The following courses are open only to students in the Special Program in Elementary Teacher Education.

107 Foundations for Elementary School Teaching (9)

Rashid, Bilsky

A block course, dealing with the history of education, the psychological foundations of elementary education, the nature of elementary education, and the elementary school in our society. The content of traditional courses in educational psychology; history of education; human development, learning, and teaching; society and the school; and introduction to elementary education will be covered. One hundred and thirty-five class hours, supplemented by field experiences. (Summer 1964.)

* Prerequisite: adequate professional preparation

- 119 *Elementary School Curriculum* (12) Rashid and Staff
A block course, identifying the essential experiences for the education of elementary school children and working toward initial competence in the methods and materials for providing such experiences. The subject areas of reading, children's literature, communication arts, arithmetic, science, social studies, art, music, and physical education are included. One hundred and eighty class hours, supplemented by appropriate observations and field experiences. (Fall—MTWThF 9-12 am, 1:30-3:30 pm.)
- 230 *Seminar for Interns in Elementary School Teaching* (3) Rashid and Staff
Scheduled weekly meetings for discussion of common problems and for cooperatively planned work on areas of individual and group needs. (Spring—S 9-12 am.)

COURSES OFFERED IN AFFILIATION WITH THE WASHINGTON SCHOOL OF PSYCHIATRY

The following Education courses, offered by the Washington School of Psychiatry in affiliation with The George Washington University, are available to graduate students in the School of Education and to qualified students in the Division of University Students. The Staff of the Washington School of Psychiatry will conduct these courses at the School of Psychiatry, 1610 New Hampshire Avenue, NW., Washington, D. C.

- 234 *Communication Skills for Teachers and Principals* (3) Bernstein
The life-space interview in the school setting between the teacher and the child or the principal and the child; the planned interview between the teacher and the parent or the principal and the parent. (Summer 1964.)
- 235 *Role of the Teacher in the Changing Community* (3) Kerckhoff
Racial, ethnic, and social class population shifts and accompanying problems of housing, health, and public safety, with emphasis on the human relations and mental health aspects of the current situation; supports, techniques, and resources available to educators. (Fall and spring—evening.)
- 236 *Emotional Factors in Learning* (3) Hypps
For counselors and guidance staff, principals, special education teachers, pupil personnel workers. Problems of guidance derived from divergent or pathological motivational patterns in the child or family. Class limited to 25 students. (Fall and spring—evening.)
- 237 *Emotional Problems Confronting the Teacher* (3) Kehne
The teacher's relationship with other teachers, the administration, the school system, and pupils; techniques of interviewing and dealing with parents, members of the school staff, and the community. (Fall and spring—evening.)
- 238 *Seminar on Learning Problems and Disabilities* (3)
Emotional learning blocks, socioeconomic disadvantages, brain damage and hyperactivity, psychosomatic symptoms and health questions affecting learning, curriculum planning and its relation to mental health and learning growth, communication and motivation. (Spring—evening.)
- 239 *Educational Problems of the Urban Child* (2) Washington
Mental health problems affecting the urban child's vocational, educational, and emotional needs; teacher-child relationship; language differences in various socioeconomic environments. Curriculum planning. (Fall and spring—evening.)
- 240 *Techniques of Interviewing for Teachers and School Staff* (3) Long
An intensive study of specific interview techniques and requisite skills. Specific problems encountered by teachers and staff will be discussed. (Fall and spring—evening.)

Department of Physical Education

The following courses are offered by the Department of Physical Education for Men and the Department of Physical Education for Women. Whenever possible the departments offer lecture courses jointly.

FIRST GROUP

- 41 *Personal Health* (1) Krupa
Physical, mental, and social health of the individual—understanding, significance, and promotion. Emphasis on personal health knowledges for the future teacher. (Spring—day.)
- 43-44 *Techniques of Physical Education Motor Activities* (2-2) DeAngelis, Elder, George
Fundamental skills, rules, and organization. Physical Education fee,* \$4.50 a semester. (Academic year—day.)
- 45-46 *Teaching Individual and Dual Sports in Secondary Schools* (2-2) (men) Hanken, Krupa
Tennis, golf, swimming, wrestling, badminton, bowling. Physical Education fee,* \$4.50 a semester. (Academic year—day.)
- 47 *Introduction to Physical Education* (2) (men) Myers
An orientation course presenting the problems of physical education, vocational analysis, scientific foundations, and scope of field. (Fall—day.)
- 48 *Introduction to Recreation* (2) (men) Hanken
The role of recreation in modern living; current practices in community recreation work; standards of training, experience, and salary; types of leadership. (Spring—day.)
- 49 *Human Anatomy* (3) Stallings
The structure of the human body. Basic course for physical education majors. Also open to both men and women not majoring in Physical Education. Prerequisite: Biology 1-2. (Fall—day.)
- 50 *Kinesiology* (3) Lawrence
A study of the anatomical mechanism of movement, analysis of the action of muscles in physical education activities. Prerequisite: an approved course in anatomy. (Spring—day.)
- 51-52 *Teaching Physical Education Activities* (2-2) (women) The Staff
Team sports: basketball, hockey, softball, soccer, speedball. Individual and dual sports: tennis, badminton, archery, swimming and diving, lifesaving and water safety. Gymnastics: tumbling apparatus and trampoline. Physical Education fee,* \$4.50 a semester. (1965-66 and alternate years.)
- 59-60 *Leadership Organization in the Intramural Program* (2-2) (men) DeAngelis
Principles of administration, organization, and supervision of intramural activities in the physical education program of the junior high school, senior high school, and college. (Academic year—day.)

* The Physical Education fee is required for registration in one or more of the activity courses.

SECOND GROUP

- 101 *Physical Education in the Elementary School* (3) Burtner, Snodgrass
Physical growth and development of the child and adolescent. Survey of age characteristics and organization of physical education activities for the various age levels in elementary school, playground, and settlement house programs. Methods and materials of tumbling, games, dance, and self-testing activities. (Fall—day; spring—evening; summer 1964.)
- 103 *History and Principles of Physical Education* (3) Stallings, Myers
Survey of history as it relates to contemporary physical education. Study of aims, objectives, and philosophy of physical education. (Fall—day.)
- 105-6 *Adapted Physical Education and Physical Examinations* Lawrence
(3-3)
Cause and correction of faulty body mechanics, physical examination methods for the diagnosis of postural defects, prescription of exercises, and program adaptation. Prerequisite: Physical Education 49 and 50. (Academic year—day.)
- 107 *Teaching Recreational Dance* (1 to 2) Burtner, Mason
Methods and materials for teaching the country and social dances of America and the folk dances of other countries to secondary school age and adult groups. Square dance calling is included. Physical Education fee,* \$4.50. (Fall—day.)
- 111-12 *Teaching Physical Education Activities* (2-2) (women) The Staff
Continuation of methods and materials in activities listed under Physical Education 51-52. Physical Education fee,* \$4.50 a semester. (1964-65 and alternate years) academic year—day.)
- 113-14 *Practice in Teaching Physical Education Activities* The Staff
(2 to 4-2 to 4)
Principles and methods applied to learning and teaching physical education activities. Supervised laboratory. Physical Education fee,* \$4.50 a semester. (Academic year—as arranged.)
- 115-16 *Teaching Team Sports in Secondary Schools* De Angelis, Harten
(2 to 4-2 to 4) (men)
Football, basketball, baseball, track and field. Physical Education fee,* \$4.50 a semester. (Academic year—day.)
- 117 *Teaching Modern Dance* (1 to 2) Burtner
Techniques for the teaching of movement as a medium of expression. Practical work in body technique, composition, and the analysis of movement for dance, singing, instrumental, voice, and percussion. Application is made to both secondary school and adult age levels. Physical Education fee,* \$4.50. (1964-65 and alternate years) fall—day.)
- 118 *Dance Production* (1 to 2) Burtner
Planning and staging of performances for demonstrations, dance concerts, and folk festivals. Lighting, costuming, sets, and make-up. Choreography for concerts, recitals, and plays for students taking course for two credits. Physical Education fee,* \$4.50. (1964-65 and alternate years) spring—day.)
- 121 *School and Community Health Programs* (3) Krupa
Health services, healthful environment, health instruction, sources of material for general health knowledge. Prerequisite: Biology 1-2. (Fall—evening.)
- 122 *Methods and Materials for Health Education* (3) Stallings
Methods and materials for teaching health. Prerequisite: Biology 1-2. (Spring—evening.)

* The Physical Education fee is required for registration in one or more of the activity courses.

- 131 *Tests and Measurements in Physical Education* (3) Krupa
Critical survey of tests in physical activities, methods of test construction, elementary statistics. (Fall—day.)
- 132 *Camp Leadership* (1 to 2) Clapp
Philosophy and techniques of camp counseling; survey of organization and programs including outdoor education. Also open to both men and women not majoring in Physical Education. (Spring—day.)
- 136 *Survey of Dance History and Dance Forms* (3) Burtner
The development of dance from primitive ritual to present day recreational and art forms of the dance. Includes ethnologic dance, practice and discussion of fundamental movement techniques, and composition. (1965-66 and alternate years: spring as arranged.)
- 138 *Organization and Administration of Physical Education* (3) Krupa, George
Organization and administration of physical education programs in elementary and secondary schools and in colleges. Study of plans, fields, equipment, and programs. (Spring—as arranged.)
- 151-52 *Recreational Leadership Activities* (3-3) Abernethy
First half: basic skills for the preschool and school-age child. Laboratory practice in crafts, music, dramatics, physical and social activities. *Second half:* basic skills for the teenage and adult. Arts and crafts, dramatics, physical and social activities. (1965-66 and alternate years: academic year—evening.)
- 158 *Safety Education: Care of and Responsibility for Athletic Injuries* (3) De Angelis
Liability, prevention, and emergency care of all types of injuries with reference to first aid, civil defense, and athletics. Safety education, with emphasis on proper use of personnel, facilities, and equipment. Prerequisite: Biology 1-2. (Spring—day.)
- 161 *Community Organization for Recreation* (3) Thompson
Resources, principles, and methods in organizing community recreation services. (1964-65 and alternate years: fall—evening.)
- 162 *Administration of Community Recreation Programs* (3) Thompson
Factors and problems in administering recreation including surveys, legislation, program area, facilities, leadership, finance, and public relations. (1964-65 and alternate years: spring—evening.)

THIRD GROUP

- 211 *Problems in Physical Education* (3)
For experienced teachers. Organization, supervision, and curriculum problems growing out of current issues; program planning policies; competition. (Fall—T 7:10-9:10 pm.)
- 220 *Problems in Health Education* (3)
Health needs; policies and program planning; use of community resources; promising practices in the field. (Spring—T 7:10-9:10 pm.)
- 231 *Evaluation in Physical Education* (3) Krupa
Planning the evaluation program; review of outcome; analysis of tests and standards; administration and interpretation of tests; guidance. (Not offered 1964-65.)
- 240 *Physical Education for the Atypical* (3)
Adaptations of activities to meet the special needs of students with physical disabilities resulting from such conditions as postural deviations, cardiac irregularities, and poliomyelitis. (Not offered 1964-65.)

Required and Elective Courses from Other Departments

MATHEMATICS

3 *College Algebra* (3)

The Staff

Exponents and logarithms; linear equations; complex numbers; quadratic equations; introduction to theory of equations; mathematical induction and the binomial theorem; permutations, combinations, and probability; determinants; progressions. Prerequisite: one year each of high school algebra and high school geometry. (Fall and spring—day and evening; summer 1964.)

6 *Plane Trigonometry* (3)

The Staff

Prerequisite: two years of high school algebra and one year of high school geometry, or Mathematics 3 (or concurrent registration therefore). (Fall and spring—day and evening; summer 1964.)

9 *General Mathematics I* (3)

The Staff

For those students in the School of Education or others electing Mathematics 9 and 10 as a terminal sequence in mathematics. Propositional logic and truth values; the number system, number bases, arithmetical computation; algebraic functions; topics from plane geometry. Prerequisite: two years of high school mathematics. Not open to students who have had former Mathematics 2. (Fall and spring—day and evening; summer 1964.)

10 *General Mathematics II* (3)

The Staff

An introduction to matrices and vector spaces; non-Euclidean geometry; introduction to concepts of the calculus. Prerequisite: Mathematics 9 or former 2. (Fall—evening; spring—day and evening; summer 1964.)

PSYCHOLOGY

22 *Introduction to Educational Psychology* (3)

J. Johnson

Consideration of individual and group differences, adjustments, and the psychology of learning in relation to education and training. (Fall—evening; spring—day; summer 1964.)

29 *Psychology of Childhood* (3)

E. Johnson

A genetic approach to the study of the child. Special emphasis is placed on the socialization process, learning, and the child's view of the world. (Fall—day; spring—evening; summer 1964.)

121 *Psychology of Learning* (3)

Finan

(Formerly Educational Psychology)

Current learning theories and issues. (Fall—day; summer 1964.)

129 *Motivational Factors in Personality* (3)

Kirkbride

(Formerly Introduction to Counseling)

A survey of basic principles and assessment techniques, with emphasis on applications to counseling. (Fall—evening; summer 1964.)

131 *Psychological Tests* (3)

Hunt

A survey of psychological tests and their more common uses in business, industry, government, law, medicine, and education. Material fee, \$7. (Fall—day; spring—evening; summer 1964.)

- 144 *Personnel Psychology* (3) Mosé
Psychological concepts and techniques in personnel management and supervision. Applications to government, industry, and military organizations. (Fall and spring—evening.)
- 225 *Seminar: Mental Hygiene* (3) Phillips
A study of mental health problems with special attention to needs of counselors, teachers, and others working with children and adolescents. (Fall—evening; spring—day; summer 1964.)
- 226 *Seminar: Clinical Psychology of Childhood and Adolescence* (3) E. Johnson
A survey of behavior and personality disorders. (Spring—evening.)
- 231 *Test Construction* (3) Mosé
The principles underlying test construction; statistical techniques in the construction, evaluation, and standardization of psychological, educational, and vocational tests. Prerequisite: a course in tests and measurements and an elementary course in statistics. (1965-66 and alternate years.)
- 233 *Individual Psychological Testing* (3) E. Johnson
Instruction and practice in giving of the Binet and Wechsler tests. Prerequisite: an elementary course in tests and measurements. Material fee, \$7. (Fall and spring—day.)

STATISTICS

- 53 *Introduction to Statistics in Psychology and Education* (3) The Staff
Lecture (2 hours), laboratory (2 hours). Sources of data, tabulation, charts and graphs, averages, dispersion, quartiles and percentiles, raw scores and derived scores, frequency distributions, reliability and validity of tests, normal curve, correlation, elementary sampling, and an introduction to estimation and tests of hypotheses. Prerequisite: one entrance unit in algebra. Laboratory fee, \$9. (Fall and spring—day and evening; summer 1964.)
- 104 *Statistics in Psychology and Education* (3) Cisin
Lecture (2 hours), laboratory (2 hours). Introductory study of statistical techniques necessary for application of statistics in research problems in psychology and education. Laboratory fee, \$9. (Fall—Saturday morning; summer 1964.)
- 105 *Statistics in Psychology and Education* (3) Cisin
Lecture (2 hours), laboratory (2 hours). Advanced study of statistical techniques necessary for an application of statistics in research problems. Analysis of variance, correlation techniques, chi-square applications, and sampling theory. Prerequisite: Statistics 53 or 104. Laboratory fee, \$9. (Spring—Saturday morning.)

The University

HISTORY AND ORGANIZATION

The George Washington University had its beginning in 1821 as The Columbian College in the District of Columbia. The name of the institution was changed in 1873 to Columbian University and in 1904 to The George Washington University. The debt of the University to George Washington whose name it bears is an intangible one.

George Washington, as President and as private citizen, had urgently insisted upon the establishment of a National University in the Federal City. There he hoped that, while being instructed in the arts and sciences, students from all parts of the country would acquire the habits of good citizenship, throwing off local prejudices and gaining at first hand a knowledge of the practice, as well as the theory, of republican government. To further the materialization of his hopes, Washington left a bequest of fifty shares of The Potomac Company "towards the endowment of a University to be established within the limits of the District of Columbia, under the auspices of the General Government, if that government should incline to extend a fostering hand towards it." The Congress never extended "a fostering hand". The Potomac Company passed out of existence, and Washington's bequest became worthless.

Fully conscious of Washington's hopes, but motivated primarily by a great missionary urge and the need for a learned clergy, a group of dedicated ministers and laymen sponsored a movement for the establishment of a college in the District of Columbia. Inspired largely by the zeal and energy of the Reverend Luther Rice, they raised funds for the purchase of a site and petitioned Congress for a charter. After much delay and amendment, Congress granted a charter which was approved by President Monroe on February 9, 1821. To safeguard the College's nonsectarian character it provided "That persons of every religious denomination shall be eligible of being elected Trustees; nor shall any person, either as President, Professor, Tutor or pupil, be refused admittance into said College, or denied any of the privileges, immunities, or advantages therefore, for or on account of his sentiments in matters of religion."

During the entire time when the institution was known as Columbian College, its activities were centered on College Hill, a tract of forty-six and a half acres between the present Fourteenth and Fifteenth Streets extending north from Florida Avenue to somewhat beyond Columbia Road. The Medical School was located downtown. For the latter part of the Columbian University period, the buildings of the University were situated along H Street between Thirteenth and Fifteenth Streets. The Medical School group still remains there.

During the last half century the University's present plan has been developed in that section of the old First Ward familiarly known as "Loggy Bottom," between Nineteenth and Twenty-fourth Streets, south of Pennsylvania Avenue. Within a few

squares are the White House, the Department of the Interior, the State Department, the World Bank, and many other governmental offices and international agencies. The area is not without its reminders of historic interest to the University. President Monroe who signed the Charter lived at 2017 Eye Street. The first President of the Board of Trustees, the Reverend Oladiah B. Brown, was for fifty years the pastor of a church at Nineteenth and Eye Streets, and Washington selected Twenty-third and E Streets as the site of the National University he had hoped to see established.

The University as it is now organized consists of Columbian College of Arts and Sciences, which offers work leading to Associate's, Bachelor's, and Master's degrees; the Graduate Council, which offers work leading to the degree of Doctor of Philosophy; the professional schools, which include Medicine; Law; Engineering and Applied Science; Education; and Government, Business, and International Affairs; the College of General Studies; the Division of University Students; the Division of Air Science; and the Summer Sessions.

The George Washington University is privately endowed and is governed by a self-perpetuating Board of Trustees of which the president is an ex officio member.

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School of Medicine: Doctor of Medicine (M.D.)

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Graduate School of Public Law: Master of Laws (LL.M.), Master of Comparative Law (M.Comp.L.), and Doctor of Juridical Science (S.J.D.)

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The College of General Studies
1964-1965



WASHINGTON, D C. 20006

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THE COLLEGE OF GENERAL STUDIES
1964-65

VOLUME LXIII

AUGUST 1964
WASHINGTON, D. C. 20006

NUMBER 17

1964

July

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College of General Studies Calendar*

1964-65

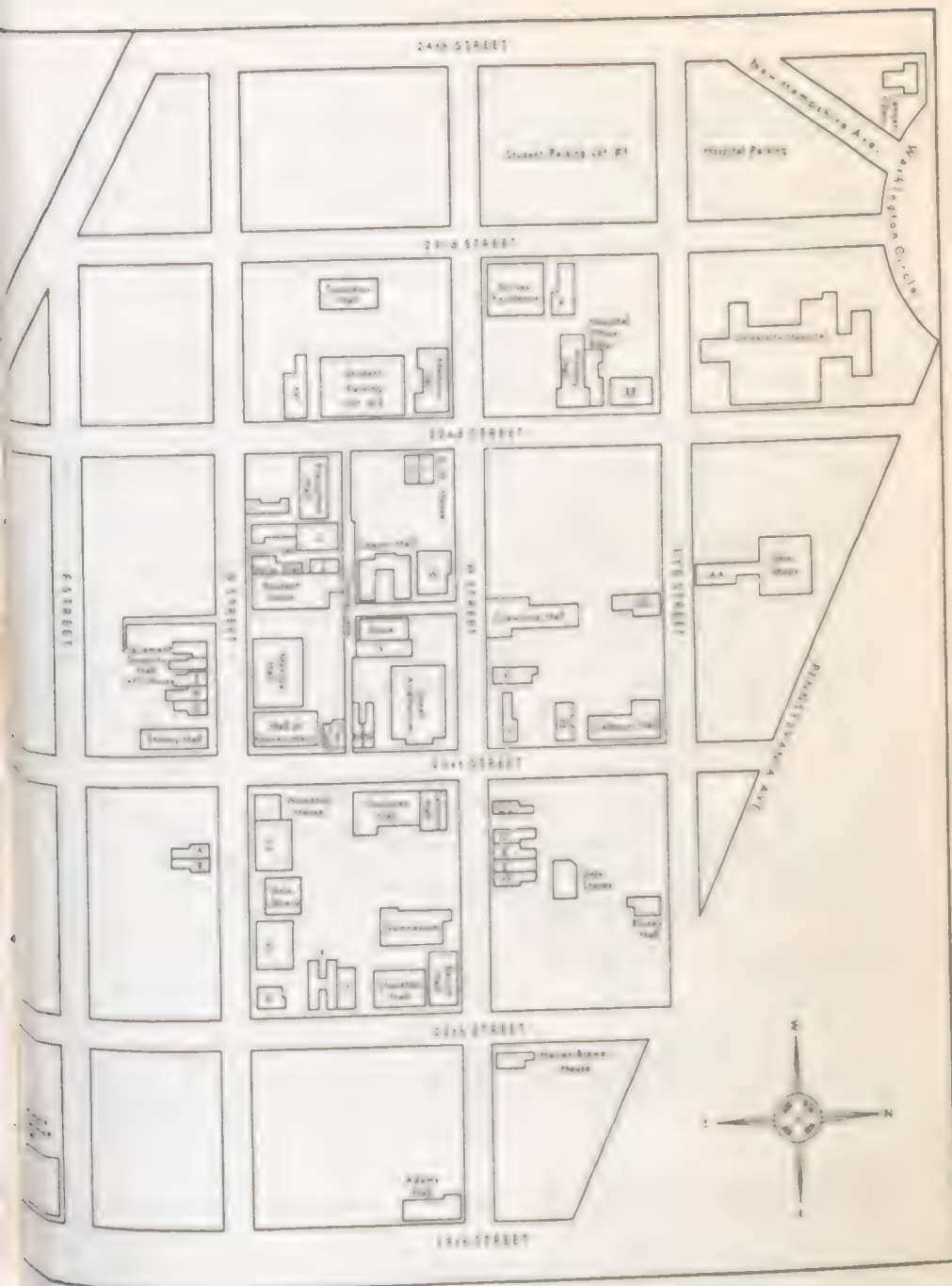
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1964							1965													
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‡ Thursday and Friday, from 12:00 to 5:00 p.m.; Saturday, from 10:00 a.m. to 1 p.m.

SPRING SEMESTER:

Campus advising: freshmen, sophomores, and all new students.....	Jan 18-27	Mon-Wed
Campus placement tests.....	Jan 25	Mon
Registration on Campus†.....	Jan 28-30‡	Thurs-Sat
Application for June graduation due in Registrar's Office		
Campus classes begin.....	Feb 1	Mon
Subjects of Master's theses of June candidates due in Dean's Office.....	Feb 5	Fri
CGS meeting of Staff of Instruction, 10:30 a.m.	Feb 6	Sat
Winter Convocation (holiday).....	Feb 22	Mon
Master's comprehensive examinations	April 3	Sat
Graduate Record examinations.....	April 10	Sat
Spring recess	April 14-20	Wed-Tues
Classes resume.....	April 21	Wed
Master's theses of June candidates due in Dean's Office	April 30	Fri
Last day of Campus spring-semester classes..	May 19	Wed
Education and Training Officers Luncheon, Lisner Lounge, 12:30 p.m.....	May 20	Thurs
Campus examination period.....	May 24-29	Mon-Sat
Memorial Day (holiday).....	May 31	Mon
Baccalaureate Service.....	June 6	Sun
Commencement	June 6	Sun

SUMMER SESSIONS:§

Off-Campus registration	June 1-11	Tues-Fri
Master's comprehensive examinations.....	July 17	Sat

REGISTRATION ON CAMPUS FALL SEMESTER

1965-66	Sept 16-18	Thurs-Sat
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† Application for graduation, for Graduate Record Examination, or for Comprehensive Examination is the responsibility of the student and must be made at the time of registration for the last courses required for the degree concerned.

‡ Thursday and Friday, from 12:00 to 8:00 p.m.; Saturday, from 10:00 a.m. to 1:00 p.m.

§ Dates of Campus courses will be announced in the Calendar of the 1965 Summer Sessions Catalogue, published in December 1964.

The College of General Studies

General Information

The College of General Studies was established in 1950 to extend the educational facilities of the University, introduce experimental programs of study for mature students, and provide educational services other than formal programs of study.

In addition to degree-granting programs it conducts conferences, seminars, and noncredit programs.

ACADEMIC STANDARDS

Courses are taught by members of the regular University staff of instruction and other individuals of recognized academic and professional competence.

The academic standards of the University are maintained in off-campus credit courses.

Limits on the size of classes may be imposed in order to maintain the quality of instruction.

The College of General Studies is a member of the Association of University Evening Colleges and the National University Extension Association.

OFF-CAMPUS STUDY

The College of General Studies works closely with personnel administrators, training officers, school officials, and others interested in developing programs of in-service training, in response to increased demands of government, education, business, and industry. Programs are also offered for service personnel who wish to work toward degrees or for professional proficiency. Off-Campus Centers are listed on pages 53-75.

TYPES OF PROGRAMS

The College offers courses in liberal arts, education, and business administration for which there is a sufficient demand and for which qualified instructors can be found regardless of whether such courses are included in the regular offerings of the University. According to the subject matter and the wish of the organizing group, credit courses applicable toward degrees and noncredit courses are arranged.

For information concerning arrangements for courses of programs of study, Telephone 965-2350 or write to the College of General Studies, The George Washington University, Washington, D. C. 20006.

PROFESSIONAL IN-SERVICE TRAINING

Programs are offered to meet the in-service needs of special groups and others will be developed as the need arises.

HOW TO ORGANIZE A PROGRAM

Any organization, group, installation, or agency interested in having the University organize and conduct a course or a comprehensive educational program, should get in touch with the Assistant Dean (Administration) of the College of General Studies, Telephone 965-2350. A representative will be sent upon request to discuss organizational plans.

TELEVISION COURSES

During the academic year 1963-64, the College of General Studies, in cooperation with New York University's "Sunrise Semester" and Station WTOP-TV Channel 9, offered a two-semester course in art, *Outlines of the History of Art*, taught by Dr. Jane Costello, Associate Professor of Fine Arts, New York University. The on-campus portion of the course was conducted by Dr. Grose Evans, Curator of the Index of American Design and of Decorative Arts, the National Gallery of Art, and Professorial Lecturer in Art at The George Washington University. Each semester of the course carried three hours of credit. It was also given as a noncredit offering, with special lectures and gallery visits. The course was scheduled for Tuesdays, Thursdays, and Saturdays throughout the year, with on-campus classes on Sundays.

The University cooperated in facilitating the purchase of textbooks and telecourse materials for the "Sunrise Semester" course, *Introduction to Ethics*, taught by Dr. Sidney Hook, Professor of Philosophy and head of the All-University Department of Philosophy at New York University, during the fall semester on Mondays, Wednesdays, and Fridays at 7:00 a.m. This course was followed during the second semester on the same days by *The Legacy of Greece and Rome*, taught by Dr. Lionel Casson, Professor of Classics, New York University. A noncredit on-campus course based on this telecast was taught on Saturdays by Dr. John F. Latimer, Professor of Classical Languages and Literatures and Chairman of the Department, The George Washington University.

During the first semester The George Washington University, in conjunction with the Columbia Broadcasting System, initiated another course on *Classroom 9* on Station WTOP-TV on Saturday mornings at 7:30. The telecourse, *The Appreciation of Music*, was taught both as a noncredit and a one-hour credit course by George Steiner, Associate Professor of Music, The George Washington University. The following courses have been taught in previous years on *Classroom 9* by members of the University Faculty: *The Story of Painting*, *Beginning Russian*, and *World Geography*.

In the fall of 1963 the College of General Studies, in cooperation with the National Naval Medical Center, again offered a credit and noncredit television course in psychology, *Human Adjustment in Hospital Settings*, to a closed-circuit network consisting of the Naval Medical Center, Walter Reed Army Medical Center, the National Institutes of Health, the Army Hospital at Fort George Meade, and the Army Hospital at Fort Detrick. The course was taught by Dr. Eva Mayne Johnson, Associate Professor of Psychology, The George Washington University.

Additional television courses may be offered from time to time. Announcements will be sent to those who request that their names be placed on the mailing lists. For

further information, consult Olive Jean McKay, Staff Associate (Continuing Education), College of General Studies, 706 Twentieth Street NW.; Telephone: 965-2350.

The coordinator for television programs is Lillian Brown, Director of Radio and Television, Building DD, Room 10, 2120 Eye Street NW.; FEderal 8-0250, Extension 370.

RADIO COURSES

In cooperation with WTOP (AM and FM) and WAMU (FM) in Washington, D. C., the College of General Studies offered a noncredit course in *Intermediate Russian* during the academic year 1963-64. In previous years courses in *Conversational French, Russian, and Spanish* have been offered on Station WTOP. The registration fee included the cost of textbooks and radio course materials.

Additional radio noncredit courses may be offered from time to time. For further information, consult Olive Jean McKay, Staff Associate (Continuing Education), College of General Studies, 706 Twentieth Street NW.; Telephone: 965-2350.

The coordinator for radio courses is Lillian Brown, Director of Radio and Television, Building DD, Room 10, 2120 Eye Street NW.; FEderal 8-0250, Extension 370.

CAMPUS STUDY

Off-campus degree candidates may register for campus courses approved for their programs, if these courses are not conveniently available at off-campus centers. Permission for on-campus registration must be obtained from the Dean of this College at least two weeks prior to the date of campus registration.

Service personnel who wish to study full-time at the University may register for campus courses through the College of General Studies if they meet the following requirements. Permission of the Dean is required for concurrent enrollment in off-campus courses.

1. The applicant must be in attendance under official orders which give him a specified time in which to finish his degree requirements.
2. He must prove that the degree requirements can be completed in the time specified in his orders only by taking advantage of the advanced standing provisions of this College.
3. He must be in a position to enroll for full-time study.

By special arrangement with the Department of the Navy, naval personnel may attend the University as full-time students for a maximum of five semesters. Academic adviser: Dr. John Francis Latimer, Building T, Room 21; FEderal 8-0250, Extension 208.

The Air Force Advanced Management Program, sponsored by the United States Air Force Institute of Technology, provides 50 semester hours of work in advanced management and supporting fields through the educational facilities of the School of Government, Business, and International Affairs for a selected group of Air Force officers. Those officers who qualify by a combination of academic background and the satisfactory completion of this program may be awarded a Bachelor's degree by the College of General Studies. Officers who already hold Bachelor's degrees may take these courses for graduate credit toward the Master of Business Administration degree in the School of Government, Business, and International Affairs. Campus coordinator and academic adviser: Dr. Waldo Sommers, Hall of Government, Room 205 (710 Twenty-first Street NW.), FEderal 8-0250, Extension 404 or 598.

For administrative counseling, consult Dr. James Grady Brown, Assistant Dean (Administration), College of General Studies, 706 Twentieth Street NW.; Telephone: 965-2350.

ADMISSION

TO COURSES

Registration in an off-campus course constitutes admission to that course only and does not constitute admission to degree candidacy or to campus courses of the University. Credit courses may count toward a degree in any school or college of the University if the student is accepted as a degree candidate and the course is approved by the appropriate dean. Credits may also be transferred to other colleges or universities.

CREDIT COURSES

Registration is conducted before or at the first meeting of each class. Transcripts of previous academic work are not required. Registration is restricted to those whose qualifications indicate that they are able to complete the courses successfully.

Auditing.—With the permission of the instructor, adequately prepared students may register as "Auditors". An auditor is not required to take active part in the exercises or to take examinations. No grades will be reported and no credit will be granted. Tuition is the same as for credit courses. If a course has 15 sessions a student may, with the approval of the Dean, change from credit to audit status prior to the 10th class session. If a course has 30 sessions, a student may, with the approval of the Dean, change from credit to audit status prior to the 20th class session. A student will not be permitted to change from audit to credit status after the second class session of any course.

Concurrent Registration.—A student registered as a degree candidate in any other college or school of the University may take credit courses in the College of General Studies only by permission (granted prior to registration) of the dean of the college or school concerned. A "College of General Studies Off-Campus Registration Permit" form must be obtained at the office of the appropriate college or school, signed by the dean of that college or school, and presented at the time of registration in the College of General Studies.

Service personnel enrolled full time for campus courses need the Dean's permission to register concurrently for off-campus courses.

NONCREDIT COURSES

Noncredit courses are open to anyone interested in enrolling. When a course is organized at the request of a particular agency or group, admission may be restricted to the students recommended by the sponsoring organization.

TO DEGREE CANDIDACY

Application for degree candidacy may be made prior to or after the first registration with the College or after completion of 15 hours of course work (see criteria for eligibility specified below in I. B and II. B). Application should be made only if

there is a reasonable assurance that the student will be in the area long enough to complete degree requirements. When a student is choosing courses in order to be considered for degree candidacy, it is of particular importance that counseling be obtained through a Field Representative. Appointments may be made by telephone (965-2350) or through the Installation Education and Training Officer.

The following factors are considered as paramount in determining the eligibility of an applicant:

1. The adequacy of previous academic work as preparation for the course of study contemplated, including quantity and quality of work and the standing of the institution in which it was done.
2. Results of specified tests, as prescribed in this catalogue or by the Committee on Undergraduate Admission and Advanced Standing.
3. The aptitude of the student for the curriculum contemplated.
 1. The character of the student.

METHODS OF ADMISSION

I. FROM SECONDARY SCHOOLS

A. Consideration for immediate admission is given to applicants for degree candidacy who present the combined evidence of (1) an acceptable certificate of graduation from an accredited secondary school, showing a minimum of fifteen "units"* in a college preparatory or academic curriculum; (2) the principal's statement that the applicant is adequately prepared to undertake college work with reasonable prospect of success; (3) College Entrance Examination Board scores on the Scholastic Aptitude Test and the English Composition Achievement Test (for students out of high school several years, appropriate other tests may be prescribed).

B. Mature students who do not meet the formal requirements stated above may be considered for degree candidacy if they complete at least 15 semester hours of the following "distributed" course work in this College with a grade average of C or better. Courses taken to qualify for candidacy must include English 1 or 1X and 2, English Composition and courses in at least two of the following areas: Humanities (literature, philosophy, foreign languages), Social Science (economics, geography, history, political science, sociology and anthropology), and Natural Science and Mathematics. Each application will be judged on its individual merits, with primary emphasis being given to the quality of work done in this College and the maturity of the student.

In either case, the applicant must send the high school record form, available at the Office of the Director of Admissions or at the College of General Studies, to his high school principal with the request that the principal fill it out and mail it directly to the Office of the Director of Admissions, The George Washington University, Washington, D. C. 20006.

II. FROM HIGHER INSTITUTIONS

A. Consideration for immediate admission with advanced standing is given to applicants for degree candidacy upon presentation of an adequate record from an accredited institution of higher learning.

* A unit represents a year's study in a secondary school subject, including in the aggregate no less than 120 sixty-minute periods, or the equivalent, of prepared classroom work.

B. Applicants whose previous record raises doubt of their ability to complete successfully degree requirements must complete at least 15 semester hours of course work in this College with a quality-point index of 2.50 or better in order to be considered for degree candidacy. Courses taken to qualify for candidacy must be distributed over two or more areas as prescribed in paragraph B, section I above.

Properly certified courses taken at accredited colleges or universities may be applied toward a degree in the College of General Studies, subject to the curriculum requirements of the degree program for which admission is sought. Work of low passing grade (such as *D* or the equivalent) is not acceptable for transfer. However, a course in which a grade of *D* was received may be used to satisfy the curriculum requirement, but may not be counted toward the total number of semester hours required for the degree.

The University reserves the right to refuse credit for transfer in whole or in part, or to allow it provisionally. Credit so given may be withdrawn for subsequent poor work.

It is the responsibility of the student to have an official transcript sent directly from each institution formerly attended to the Office of the Director of Admissions, The George Washington University, Washington, D. C. 20006.

If the transcript from a higher institution includes the record of his secondary school work, it is not necessary for the applicant to have forwarded a separate record from the principal of the secondary school.

ADVANCED STANDING

In addition to credit allowed in transfer from other accredited colleges or universities, see "From Higher Institutions", a maximum of 30 semester hours of advanced standing may be obtained by any combination of the following methods*.

1. Service Schools

A maximum of 30 semester hours may be obtained on the basis of service schools satisfactorily completed, as evaluated in accordance with the American Council on Education, "Guide to the Evaluation of Educational Experience in the Armed Forces". Ordinarily such subjects are counted as electives. No credit will be allowed for military experience as such.

2. Validating Examinations

A maximum of 30 semester hours may be obtained by validating examinations. With the approval of the Dean or the Assistant Dean (Academic Affairs) and the department concerned, permission to take such examinations is granted those who are qualified by work experience and background. Validating examinations must be completed during the first calendar year in which the student is registered as a degree candidate. The fee for each 3-hour course examination is \$54.

3. Correspondence Courses

A maximum of 15 semester hours may be earned through the successful completion of correspondence courses of college level which are on the approved list of The George Washington University.

* The granting of credit by this College for service schools and correspondence courses is the result of careful but often subjective evaluation and may or may not be accepted by another institution or by other schools and colleges of this University.

EXAMINATION FOR WAIVING CURRICULUM REQUIREMENTS

During the first full semester of degree candidacy, a student wishing to omit a required course may, with the permission of the Dean, take a waiver examination, the passing of which relieves him of the curriculum requirement and qualifies him for registration in an advanced course. *Passing of the waiver examination does not entitle the student to credit toward a degree.* The fee for each 3-hour course examination is \$5.

FURTHER INFORMATION

For detailed information concerning advanced standing acceptable in the curriculum contemplated, see "Advanced Standing" under the degree concerned.

FEES

(All fees should be paid by check or money order)

The following fees were adopted for the academic year 1964-65.

Tuition Fees

On-campus:

Full-time program (12 to 18 hours), each semester*	\$625.00
Part-time program or hours in excess of 18, for each semester hour*	40.00

Off-campus:

For each semester hour for which a student registers†	27.00
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The Education Program of the Armed Forces may defray a maximum of \$13.50 a semester hour, for service personnel.

Special Fees

Application fee (degree candidate) nonrefundable	\$15.00
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Graduation Fees

Associate in Arts, Associate in Science, Associate in Secretarial Administration	10.00
Bachelor's or Master's degrees.....	25.00

Graduate Record Examination fee (to cover two examinations), charged each candidate for a Bachelor's degree in the College of General Studies. (For procedure, see Graduate Record Examination, pages 19-20)	10.00
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Fee for binding 3 copies of the Master's thesis	6.00
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Withdrawal fee, charged in special cases	5.00
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Reinstatement fee, for reinstatement after financial suspension	10.00
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Residence fee, off-campus degree candidate, to maintain "in residence" status during any semester of absence from the University‡	27.00
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Residence fee, on-campus degree candidate, to maintain "in residence" status during any semester of absence from the University or after completion of tuition requirements‡	40.00
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* Payment of tuition for a Master's thesis entitles the candidate, during the academic year of registration, to the advice and direction of the members of the faculty under whom the thesis is to be written. In case a thesis is undertaken, an additional semester's academic year may be granted without further tuition payment. The student must, however, be registered "in residence" during this period. If the preparation of the thesis extends beyond the second academic year, it must be registered for again, and tuition paid on the same basis as for a repeated course.

† Except in War College programs.

‡ Payment of the residence fee entitles the student who is granted leave of absence to return and continue his work toward a degree under the academic requirements which were in force at the time of his first registration. The residence fee applies toward neither financial nor residence requirements for the degree.

Fee for each examination to waive a curriculum requirement.....	5.00
Validating Examination fee.....	54.00
Transcript fee, charged for each transcript of record.....	1.00

PAYMENT OF FEES

OFF-CAMPUS COURSES

For fifteen-week credit courses

Students not receiving tuition assistance.....Payable in 3 equal installments: the first at time of registration; the second, 30 days after the beginning of the course; the third, 60 days after the beginning of the course.

Students receiving tuition assistance.....Payable in 2 equal installments: the first at time of registration; the second, 30 days after the beginning of the course.

Payments are due at the stipulated times even if the student has not received a fee-due reminder notice from the University

For eight-week credit course Payable in full at registration

For noncredit course Payable in full at registration

Financial Suspension.—A student who fails to meet tuition payment when due is automatically suspended and may not attend classes until he has been officially reinstated and paid all accrued fees and a \$10 reinstatement fee.

CAMPUS COURSES

For regulations governing the payment of fees for Campus courses, see the appropriate catalogue of the University.

REFUND OF FEES

OFF-CAMPUS COURSES

In no case will a refund of fees be made for eight-week credit courses or for non-credit courses unless the course is cancelled.

Fifteen-week credit course.—In no case will the first third of the tuition cost be refunded unless the course is cancelled. Two-thirds of the total charge will be waived or refunded if the course is dropped within the first 30 days. One-third of the total cost will be waived or refunded if the course is dropped within the second 30 days. No refund will be allowed on withdrawal subsequent to the second 30-day period. In no case will tuition be reduced or refunded because of absence from classes.

This regulation does not apply if a student withdraws from one course to enter another, or if a class is cancelled because of insufficient enrollment.

CAMPUS COURSES

For regulations governing refund of fees for Campus courses, see the appropriate catalogue of the University.

REGULATIONS

AMOUNT OF WORK

A full-time student who is not on probation may take ordinarily not more than 17 semester hours. A student employed more than 20 hours a week, who is not on probation, may take not more than 10 hours.

A full-time student whose quality-point index is 3.50 or higher may take not more than 19 hours. An employed student who meets the same standard may take not more than 12 hours.

A student on probation normally may take not more than 3 semester hours.

A student who accepts employment after registration or at any time during a semester must report that fact immediately to the Dean so that his program may be adjusted, if necessary.

ATTENDANCE

The student is held responsible for all of the work of the course and all absences must be excused by the instructor before provision is made for the student to make up work missed.

Absences are excused if the number of class hours missed does not exceed the semester hours for the course. In a fifteen-week course in which classes meet once a week, *one* unexcused absence is permitted. In a fifteen-week course in which classes meet twice a week, *two* unexcused absences are permitted. In an eight-week course meeting twice a week, *one* unexcused absence is permitted.

Absences immediately preceding or following holiday periods are counted double.

Excuses for two or more consecutive class periods, and for absences from examinations which have been announced in advance, may be obtained only by making written application to the instructor.

INDEPENDENT STUDY PLAN

A student of demonstrated capacity and with special interest in the subject matter of a course may be permitted to undertake independent study and readings under the personal direction of an instructor, in accordance with the rules of the department or departments concerned. Credit under this plan is limited to the specific course-credits as listed in the courses of instruction.

SCHOLARSHIP

GRADES

Grades are mailed to the student through the Office of the Registrar at the close of each semester. They are not given out by instructors or the administrative staff of the College.

Undergraduate Grading System.—A, excellent; B, good; C, average; D, passing; F, failing; CR indicates credit. Whenever a grade has not been assigned, the sym-

bol *I* (incomplete) or the symbol *W* (authorized withdrawal) will be assigned. The symbol *I* indicates that a satisfactory explanation has been given the instructor for the student's failure to complete the work of the course. An "incomplete" cannot be made up after the lapse of one calendar year, except by written permission of the Dean's Council. An incomplete which is not removed within one calendar year is automatically changed to an *F*.

A student may not repeat, for grade, a course in which he has received a grade of *D* or above, unless required to do so by the department concerned. A written statement to this effect must be submitted to the Dean by the appropriate departmental chairman.

*Graduate Grading System.**—*A*, excellent; *B*, good; *C*, average; *F*, failing; *W*, authorized withdrawal; and *CR* indicates thesis credit.

QUALITY-POINT INDEX*

Quality points are computed from grades as follows:

For each semester hour of the letter grade—*A*, 4 points; *B*, 3 points; *C*, 2 points; *D*, 1 point; *F*, no points.

Scholarship is computed in terms of the quality-point index. This is done by dividing the total number of quality points by the total number of semester hours for which the student has registered. Example: if a student received an *A* in one three-credit course, and a *B* in another three-credit course, he would compute his quality-point index in this way:

$$A = 4 \times 3 \text{ (semester hours)} = 12$$

$$B = 3 \times 3 \text{ (semester hours)} = 9$$

$$\frac{12}{6} = 2$$

$$\frac{21}{6} = 3.5 \text{ quality-point index}$$

Courses marked *W* or *I* are not considered in determining the index, except that courses marked *I* will be considered when a formal grade is recorded. An incomplete which is not removed within one calendar year is automatically changed to an *F*. Grades in courses taken at other institutions are not considered in computing the quality-point index.

WARNINGS

At stated intervals during the academic year students who are doing work of *D* grade or lower in courses with departmental numbers below 100, receive "warnings". A "warning" constitutes notice to the student that he must consult his instructor and his adviser at the earliest opportunity. "Warning periods" are established during the seventh and eighth weeks of fifteen-week courses, and during the third and fourth weeks of eight-week courses.

PROBATION

A student must maintain a quality-point index of at least 2.00 or be placed on probation.

A student who has attempted 12 or more semester hours of work and whose quality-point index is between 1.50 and 2.00 is placed on probation for the period in which he attempts 12 additional semester hours of work. If his quality-point index

* A new statement defining the quality-point index for the Graduate Grading System will be announced at the beginning of the 1964-65 fall semester.

is still below 2.00 at the end of this probationary period he is suspended. The Committee on Scholarship reserves the right to extend the period of probation even if the student has earned an average of above 2.00. A student placed on probation for a third period, whether successive or after an interval, is suspended.

SUSPENSION*

A student who has attempted 12 or more semester hours of work and whose quality-point index is below 1.50 is subject to suspension; however, a student who has a quality-point index between 1.40 and 1.50 is considered by the Committee on Scholarship, which may retain him on probation or suspend him.

A student who is subject to probation for the third time, whether successive or after an interval, is suspended.

A student suspended for poor scholarship may apply for readmission after an interval of one calendar year. He must then submit evidence to the Committee on Scholarship that he is better qualified to pursue college work. A student suspended twice for poor scholarship will not be readmitted.

READMISSION

A student who withdraws, is suspended, or is otherwise absent from the University for one semester or more, may re-enter and continue his work only under the rules and regulations in force at the time of his return. Forms for readmission may be obtained from the Office of Admissions of the University. Complete and official transcripts from each institution the student has attended since making his previous application must be sent to the Office of the Director of Admissions before his application for readmission can be evaluated.

CHANGES IN PROGRAM OF STUDIES

DROPPING A COURSE OFF-CAMPUS

Courses meeting once or twice a week for 2½ hours may be dropped without academic penalty during the first 10 class periods, and courses meeting once or twice a week for 1½ hours may be dropped without academic penalty during the first 20 class periods.

Withdrawing from a course without academic penalty after the 10th or 20th class meeting, as the case may be, requires approval of a written request, which should be addressed to the Dean of the College of General Studies.

Procedure for dropping courses.—An *Off-Campus* drop slip (obtainable from the instructor, training officer, or the College of General Studies) must be completed; signed and dated by the instructor; and submitted, in person or by mail, to the College of General Studies.

Notifying an instructor of the intention to drop a course does not constitute an official withdrawal. Failure to follow the proper procedure will result in an automatic grade of *F* and, regardless of the time of discontinuance, will not relieve the student of financial responsibility for the entire course. (See "Refund of Fees" page 14.)

* For Financial Suspension see "Payments of Fees" page 14.

DROPPING A CAMPUS COURSE

A *Campus* drop slip (available at the Office of the Dean) must be completed; signed and dated by the instructor; and submitted, in person or by mail, to the College of General Studies.

Withdrawal between the last working day* in October and the end of the fall semester and between the last working day* in February and the end of the spring semester is permitted only in exceptional cases.

All charges for courses dropped without the approval of the Dean must be met by the student. Reporting the dropping of a course to an instructor does not effect its discontinuance.

TRANSFER WITHIN THE UNIVERSITY

Transfer to the College of General Studies, as a degree candidate, from another college, school, or division of the University may be made only with the approval of the deans concerned. Application for transfer should be made on the transfer form, which is available at the Office of the Director of Admissions. An insert form, obtainable at the College of General Studies, must also be completed. Upon transfer the student should consult the Dean and understand clearly the requirements he must fulfill.

A maximum of 45 semester hours is transferrable toward an Associate's degree; 90, toward a Bachelor's degree; and 18, toward a Master's degree. Students transferring within the University are advised to note the residence requirements of the degree sought.

CREDIT

Credit toward a degree is given only after registration for and satisfactory completion of the required work of courses in the University, or upon the granting of advanced standing in accordance with the regulations of the College.

On request the Registrar will issue to undergraduate degree candidates a balance sheet showing the amount of work completed and the requirements remaining to be met for the degree. A second balance sheet will be issued only in the event the student changes major or degree objectives.

In special instances, a person who has been admitted to the University may be registered, with the permission of the instructor, as an "auditor" in a class (no academic credit). An auditor is not required to take active part in the exercises or to take examinations. A student who takes a course as an auditor may not take the same course later for credit.

TRANSCRIPTS OF RECORD

Official transcripts of student records will be issued on request of the student or former student. A fee of one dollar is charged for each transcript. No certificate of work done will be issued for a person who does not have a clear financial record.

GRADUATION REQUIREMENTS

To be recommended for graduation a student must have met the admission requirements of the College; completed satisfactorily the scholarship, curriculum, resi-

* The University work week is Monday through Friday, inclusive.

dence, and other requirements for the degree for which he is registered; and be free from all indebtedness to the University.

Application for Graduation.—It is the student's responsibility to file an application for graduation when registering for the last semester of course work needed to complete the degree requirements. This form should be attached to the final registration forms or mailed to the College of General Studies. The graduation fee should not be included; the student will be billed by the Cashier prior to Commencement.

Scholarship.—The undergraduate must have a general quality-point index of 2.00. Candidates for the Bachelor's degrees must, in addition, have a quality-point index of 2.50 in the major. *A new statement defining graduate scholarship requirements will be made at the beginning of the 1964-65 fall semester.*

Curriculum.—See the requirements for the degree concerned.

Residence.—A student is "in residence" only when registered for course work after making application for admission to degree candidacy or for the 15 semester hours undertaken to qualify for degree candidacy (see the specific residence requirements for the degree concerned).

The student who has completed his course requirements but whose graduation is deferred for any reason must maintain "in residence" status by paying the residence fee for the semester immediately preceding the graduation at which he expects to receive his degree.

If there is an interruption in the residence status, the student must apply for readmission to degree candidacy and meet any changes in curriculum which have been made since his original admission.

With the permission of the Dean, a student may be granted leave of absence; such student should, however, remain technically in residence by paying the residence fee for each semester he is absent. For the purpose of this regulation, the summer session is disregarded.

By special arrangement, service personnel who receive military transfers when they are within 6 hours of a degree may be permitted to complete their work elsewhere, transfer these credits to the College of General Studies, and receive a degree from this University. This procedure does not apply to Master's candidates who have been granted 6 hours of transferred credit.

Graduate Record Examination.—Since a growing majority of graduate schools throughout the country have the Graduate Record Examination as an admission requirement and many states require it for teacher certification, all senior or final year candidates for the Bachelor's degrees in the College of General Studies are required to take the Graduate Record Examination, which provides a measure of general scholastic ability at the graduate level; and Area Tests (achievement), which measure breadth of knowledge and understanding in three broad areas of the liberal arts: Natural Science, Social Science, and the Humanities. The examinations are conducted by the University twice a year: the Fall Testing Session (December 12, 1964) for students graduating in February, and the Spring Session (April 10, 1965) for those graduating in June. Students expecting to complete degree requirements during the Summer Sessions should take the examination in the Spring Session.

As a part of registration for the final semester of undergraduate study, each student is responsible for applying for the Graduate Record Examination. Application

is to be made on the appropriate form and sent to the Assistant Dean (Administration), College of General Studies, together with a check or money order for \$10, made out to The George Washington University.

Students will receive individual reports of test scores and may avail themselves of the regular transcript services of the Educational Testing Service. By special permission, students who expect to graduate in June may take the Graduate Record Examination at the previous Fall Testing Session, so as to have transcripts available early in the year when applying for admission to graduate schools.

Attendance and Conduct.—The University reserves the right to refuse to confer a degree upon a candidate whose attendance or conduct has been unsatisfactory.

Thesis.—A thesis, submitted in partial satisfaction of requirements for the Master's degree, must be submitted in its final form to the Dean no later than the date specified in the calendar. Three complete copies of each thesis are required. It is the responsibility of the candidate for a graduate degree to obtain from the Dean a printed copy of the regulations governing the styling and reproduction of the thesis. These regulations are rigidly enforced. (See pages 37-38.)

Accepted theses, with accompanying drawings, become the property of the University and are deposited in the University Library, where the duplicate copies are bound and made available for circulation. Permission to publish or adapt material in them must be secured from the Dean.

Graduation in Absentia.—Application for graduation in absentia must be submitted to the Dean.

HONORS

Dean's List.—To be eligible for inclusion on the Dean's List, a student must be a candidate for an undergraduate degree in the College of General Studies. Course work taken while the application for admission is being processed will be computed in determining eligibility for the Dean's List. A full-time degree candidate must have a minimum quality-point index of 3.50 for the semester concerned; a part-time degree candidate must have a quality-point index of 3.50 on the last 12 semester hours of work and must have maintained continuous registration for at least one three-hour course during the period concerned. Eligibility for inclusion again will be determined on the basis of the subsequent 12 semester hours of work.

With distinction.—The undergraduate degrees may be conferred "with distinction", at the discretion of the Dean's Council of the College and the Committee on Scholarship of the University, if a student attains a quality-point index of 3.50 or higher on all work taken at this University. To be eligible for this honor a student must have completed at this institution at least one-half of the course work required for the degree.

Special honors.—Special honors may be awarded to any member of the graduating class for outstanding achievement in the student's major field of work on recommendation of the major department, under the following regulations:

1. The student must have his candidacy for special honors approved by the faculty member representing the major department or field not later than the beginning of the senior year.

2. The student must meet such other conditions as may be set at the time his candidacy is approved.

3. No student will be awarded special honors unless he has a quality-point index of at least 3.00 on all work taken at this institution.

4. To be eligible for honors a student must have completed at this institution at least one-half of the academic course work required for the degree.

DISHONESTY

If a student knowingly makes a false statement or conceals material information on an application for admission, registration card, or any other University document, his registration may be canceled and he will be ineligible (except by special action of the Dean's Council) for subsequent registration in any unit of the University.

Evidence of dishonesty on the part of any student will result in his suspension by the Dean upon recommendation of the Dean's Council.

A student found guilty of dishonesty will be suspended for a stated period and will be deprived of credit for all courses in which he is enrolled during the semester in which the dishonest act occurs. A disciplinary grade of "Failure—Academic Dishonesty" will be recorded for each such course, and this grade will be employed in computation of the quality-point index.

If a student suspended because of academic dishonesty should be readmitted, he may be required to repeat for grade all courses for which a disciplinary grade has been recorded, and both the grade earned on repetition and the disciplinary "Failure—Academic Dishonesty" grade will be employed in computation of the quality-point index.

THE LIBRARY

A student registered in the College of General Studies is entitled to the reference use of the University Library. A library card is issued to each student.

The loan period for most books available for home circulation is two weeks, with an additional two-week renewal. A fine of five cents will be charged for each day a book is overdue. Any book which does circulate is subject to recall by the Librarian at any time. Reserve books for collateral reading must be used in the reading rooms when the Library is open. With special permission they may be drawn for overnight use when the Library closes. A fine of twenty-five cents will be charged for the first hour or fraction of an hour and five cents for each hour or fraction thereafter that a reserve book is overdue. Grades of a student will be withheld until his library record is clear.

The hours of the University Library are: Monday through Friday, 9:00 a.m. to 10:00 p.m.; Saturday, 9:00 a.m. to 5:00 p.m.; Sunday, 2:00 p.m. to 6:00 p.m.

RIGHT TO DISMISS STUDENTS

The right is reserved by the University to dismiss or exclude any student from the University, or from any class or classes, whenever, in the interest of the student or the University, the University Administration deems it advisable to do so.

RIGHT TO CHANGE RULES

The University and its various colleges, schools, and divisions reserve the right to modify or change requirements, rules, and fees. Such regulations shall go into force whenever the proper authorities may determine.

VETERANS EDUCATION

The personnel of the Office of the Dean of Men, Building Q, 2020 H Street NW., act as advisers to veterans and war orphans and in a liaison capacity between the University and the Veterans Administration. This Office should be consulted concerning educational benefits before applying to the Veterans Administration for certification. The Veterans Administration is at 1717 Massachusetts Avenue NW., Washington, D. C. 20421.

Students eligible under one of the state laws should also contact this Office.

PUBLIC LAW 634 (War Orphans' Educational Assistance Act)

A child of a person who died of a disease or injury incurred or aggravated while on active duty in the Armed Forces during World War I, World War II, or the Korean Conflict may be eligible for educational assistance under this Act, if certain age requirements are met. In the case of a child who has not reached the age of majority, his guardian must make application for him to the Veterans Administration.

PUBLIC LAW 190 (World War II GI Bill Extension)

The educational benefits for World War II veterans terminated July 25, 1956, except for persons eligible under special enlistment provision.

PUBLIC LAW 550 (Korean GI Bill)

To be eligible, a veteran must have been in service between June 27, 1950 and January 31, 1955, no longer be on active duty, and have begun his education within three years after separation. Such students have eight years from separation or January 31, 1965, whichever is earlier, to use their benefits.

Application for benefits to the Veterans Administration should be made as early as possible; V.A. approval should be presented to the veterans adviser from the Office of the Dean of Men during the registration procedure.

PUBLIC LAWS 16, 894, AND 87-815 (Vocational Rehabilitation)

Disabled veterans desiring vocational rehabilitation under either Law should apply to the Veterans Administration for approval of their training objectives at least sixty days prior to registration.

COUNSELING

Students in the College of General Studies may obtain counseling and assistance in program planning in the offices of the College or from Field Representatives at the installations and agencies at which courses are held. Appointments may be made by calling the College of General Studies: Telephone 965-2350; or through the Education or Training Officer at individual installations. University counselors are also available at all installations and agencies during announced registration periods and at scheduled times each month.

TESTING AND COUNSELING CENTER

In addition, the services of The George Washington University Testing and Counseling Center are available to all students in the College of General Studies. The

counseling services are designed to assist individuals in making educational and vocational plans. The program requires approximately 15 hours of testing, scheduled in a series of three or four appointments. During this time, information concerning past experience, general ability, interest, personality, aptitudes, and achievement is obtained. Test results are interpreted and their implications discussed with the client. The Center is prepared to furnish related occupational and educational information. Clients are referred for specialized services when required. Follow-up is provided if requested.

The services offered by the Center include: aid in vocational choice; checking present training objectives; diagnosis of academic difficulties; checking suitability of present job; and special testing services.

Fees.—Except for specialized testing, the fee covers testing and counseling based on the results of the tests. For students who are currently registered as degree candidates in the University, the fee is \$10; for students currently enrolled in the University but not as degree candidates, the fee is \$40; for graduates of the University, \$40; for community clients, \$65. Fees for specialized testing are dependent upon the services involved. All fees are payable at the Office of the Center.

Appointments may be made by phone, mail, or in person. The Center is open from 9:00 a.m. to 5:00 p.m. Monday through Thursday, and Friday from 9:00 a.m. to 12:30 p.m. The office is in Building N, 718 Twenty-first Street NW., Washington, D.C. 20006. Telephone: FEderal 8-0155 (or FEderal 8-0250, Extension 463).

The Associate's Degrees

Five Associate's curricula are available: the Associate in Arts curriculum which constitutes the first two years of the Bachelor of Arts curriculum (see pages 24-25) and the four Terminal Curricula—(1) Associate in Arts with a major in Accounting or Secretarial Studies, (2) Associate in Science, (3) Associate in Secretarial Administration.

Students who plan to continue working in this College toward the Bachelor's degree must apply to the Dean upon completion of requirements for the degree of Associate in Arts (which is optional). Forms for this purpose are available at the Office of the Registrar and the College of General Studies.

After completing the College of General Studies requirements for the degree of Associate in Arts, students may wish to transfer to one of the other schools or colleges within the University, or they may wish to transfer to another institution. However, modifications in admission, advanced standing, and curriculum requirements permitted by this College may not be accepted in transfer. Therefore, while registered in the College of General Studies, students should meet the requirements of the college or university to which they wish to transfer. The entrance requirements of the colleges and schools of the University are stated in the separate catalogues of the University, which are available at the Office of the Director of Admissions.

ADVANCED STANDING

A maximum of 30 semester hours of advanced standing toward the degrees of Associate in Arts and Associate in Secretarial Administration may be earned, as explained in detail on page 12.

REQUIREMENTS FOR THE DEGREES

RESIDENCE

At least the last 15 semester hours for the degree must be completed while registered as a degree candidate (see page 19) in the College of General Studies. The 15 semester hours taken to qualify for degree candidacy are accepted in partial satisfaction of the residence requirement, if the courses are approved as part of the student's degree program.

SCHOLARSHIP

The system of grading and computing scholarship is described in detail on pages 15 and 16. For regulations concerning probation, suspension, and readmission, see pages 16-17.

CURRICULUM

The satisfactory completion of 60 semester hours is required, as outlined in one of the following curricula.

Associate in Arts Curriculum

The following curriculum leads to the degree of Associate in Arts and constitutes the first half of the Bachelor of Arts curriculum. For the second half, see pages 29 and 30.

Faculty Adviser: Richard Baker Simons, Ph.D., Assistant Dean (Academic Affairs) of the College of General Studies. Building F, Room 15 (706 Twentieth Street NW.), Telephone: 965-2350.

	Semester Hours
English 1 or 1X, 2: English Composition.....	6
English 41-42: Introduction to World Literature; 51-52: Introduction to English Literature; 71-72: Introduction to American Literature; or Philosophy 51-52: Introduction to Philosophy.....	6
*Foreign Language	12

* A student offering for admission four acceptable high school units in one foreign language or two units in each of two foreign languages is not required to take any foreign language. (A unit represents a year's study in a secondary school subject, including in the aggregate not less than 120 sixty-minute periods of classroom work.) If he offers two units only, he must complete the entire second-year college course in the same language or the first-year college course in another language. The usual college requirement is two years of a single language, but since many College of General Studies students may subsequently be stationed abroad, some familiarity with two foreign languages may be particularly useful. Therefore students may take one year each of two different foreign languages. Those who transfer to other institutions will probably have to take two years of one language and should be guided accordingly.

The high school units accepted under the above arrangements remove the college language requirement, but, do not count for college credit.

	Semester Hours
Social Studies: from economics, history, political science, sociology and anthropology, or Geography 51 and 52. Six hours in one department are required	6
Science: Chemistry 3-4: Fundamentals of Physical Science, or an introductory course in biology, geology, or physics (if arrangements cannot be made to offer such courses off campus, students may take these courses on campus)	6 or 8
Elective	22 to 24
Total.....	60

Terminal Programs

The following two-year terminal curricula are designed for students who do not wish to extend their college education beyond two years.

ASSOCIATE IN ARTS CURRICULUM IN ACCOUNTING

The advanced standing possible in this curriculum is limited to 6 semester hours of electives.

Faculty Adviser: John Coughlan, B.Comm., Ph.D., Associate Professor of Accounting. Hall of Government, Room 100 (710 Twenty-first Street NW.), Federal 8-0250, Extension 243, 610

	Semester Hours
Acct 1-2: Introductory Accounting	6
Acct 101: Cost Accounting	3
Acct 111: Financial Statement Analysis.....	3
Acct 121-22: Intermediate Accounting	6
Acct 161: Income Tax Accounting.....	3
Acct 171: Auditing	3
Acct 181: Accounting Systems	3
Acct 191: Advanced Accounting	3
Acct 193: Business Budgeting	3
BA 131: Business Finance	3
BA 161: Commercial Law: Contracts, Sales, Agency, and Bailments.....	3
BA 162: Commercial Law: Negotiable Instruments, Property, Mortgages.....	3
Econ 1-2: Principles of Economics.....	6
Engl 1 or IX, 2: English Composition.....	6
Elective (To be selected with the approval of the adviser).....	6
Total.....	60

IN SECRETARIAL STUDIES

Faculty Adviser: Olive Jean McKay, A.M., Ed.D., Staff Associate (Continuing Education) of the College of General Studies. Building F, Room 28 (706 Twentieth Street NW.), Telephone: 965-2350

	Semester Hours
Acct 1: Introductory Accounting	3
Engl 1 or IX, 2: English Composition.....	6

	Semester Hours
Literature	6
Engl 51-52: Introduction to English Literature (3-3)	
Engl 71-72: Introduction to American Literature (3-3)	
Engl 91-92: Introduction to European Literature (3-3)	
Russian 91-92: Introduction to Russian Literature (3-3)	
Russian 93-94: Introduction to Slavic (non-Russian) Literature (3-3)	
Secretarial Studies	24
Sec Studies 1: Elementary Typewriting (3)	
Sec Studies 2: Intermediate Typewriting (3)	
Sec Studies 11: Elementary Shorthand and Transcription (3)	
Sec Studies 12: Intermediate Shorthand and Transcription (3)	
Sec Studies 15: Advanced Shorthand, Typewriting, and Transcription (3)	
Sec Studies 16: Secretarial Shorthand, Typewriting, and Transcription (3)	
Sec Studies 51: Business Correspondence (3)	
Sec Studies 54: Secretarial Practice (3)	
Social Studies (Six hours in one department from the following are required)	6
Econ 1-2: Principles of Economics (3-3)	
Geog 51: Introduction to Geography (3)	
Geog 52: World Regions (3)	
Hist 39-40: The Development of European Civilization in Its World Context (3-3)	
Hist 71-72: The Development of the Civilization of the United States (3-3)	
Pol Sc 9-10: Government of the United States (3-3)	
Anthro 1 and	
Soc 2: Man, Culture, and Society I-II (3-3)	
Speech 11: Voice and Diction.....	3
Elective (To be selected with the approval of the adviser).....	12
Total.....	60

ASSOCIATE IN SCIENCE CURRICULUM

The curriculum leading to the degree of Associate in Science in the field of Physical Sciences is offered by the College of General Studies and on campus by Columbian College of Arts and Sciences. Students who have taken courses in this curriculum at installations where the entire program is not available may, if they meet the entrance requirements, transfer to Columbian College of Arts and Sciences to complete the curriculum.

No credit toward the degree will be granted for service schools or correspondence schools. All students interested in continuing the study of physical science toward a Bachelor's degree should consult the Dean or Assistant Deans of the College of General Studies.

Faculty Adviser: Richard Baker Simons, Ph.D., Assistant Dean (Academic Affairs) of the College of General Studies, Building F, Room 15 (706 Twentieth Street NW.), Telephone: 965-2350

	Semester Hours
Ap S 3: Graphical Communications.....	3
Chem 11-12: General Chemistry.....	8
Chem 21: Qualitative Inorganic Analysis.....	4
Engl 1 or 1X, 2: English Composition	6
Engl 11: The Writing of Reports.....	3
*Math 3: College Algebra	3
*Math 6: Plane Trigonometry	3

* The Mathematics 3 requirement may be satisfied by two years of acceptable high school algebra; the Mathematics 6 requirement, by one-half year of high school trigonometry.

Semester
Hours

Math 21: Calculus I	3
Math 22: Calculus II	3
Math 23: Calculus III	3
Math 24: Calculus IV	3
Physics 1-2: General Physics	8
Physics 51-52: Introduction to Experimental Physics.....	4
Electives (Speech 1: Effective Speaking (3) and Economics 1-2: Principles of Economics (3-3) are recommended)	6
Total.....	60

ASSOCIATE IN SECRETARIAL ADMINISTRATION CURRICULUM

This curriculum is designed for secretarial students who, in addition to obtaining the degree of Associate in Secretarial Administration, wish to prepare for the Certified Professional Secretaries' Examination for the certificate issued by the Institute for Certifying Secretaries, a body of the National Secretaries Association, International.

The status of applicants with academic work taken at another institution will be established on application for degree candidacy.

Faculty Adviser: Olive Jean McKay, A.M., Ed.D., Staff Associate (Continuing Education) of the College of General Studies. Building F, Room 28 (706 Twentieth Street N.W.), Telephone: 965-2350

Semester
Hours

Acct 1-2: Introductory Accounting.....	6
BA 102: Fundamentals of Management.....	3
BA 109: Office Management	3
Econ 1-2: Principles of Economics.....	6
Engl 1 or 1X, 2: English Composition	6
Engl 41-42: Introduction to World Literature;	
Engl 51-52: Introduction to English Literature; or	
Engl 71-72: Introduction to American Literature.....	6
Psych 1: General Psychology.....	3
Sec Studies 2: Intermediate Typewriting	3
Sec Studies 11: Elementary Shorthand and Transcription.....	3
Sec Studies 12: Intermediate Shorthand and Transcription.....	3
Sec Studies 15: Advanced Shorthand, Typewriting, and Transcription.....	3
Sec Studies 16: Secretarial Shorthand, Typewriting, and Transcription.....	3
Sec Studies 51: Business Correspondence	3
Sec Studies 54: Secretarial Practice	3
Speech 1: Effective Speaking or Speech 11: Voice and Diction.....	3
Stat 51: Introduction to Business and Economic Statistics (3), or Statistics 101: Basic Principles of Statistical Methods (3).....	3
Total.....	60

The Bachelor's Degrees

Programs are offered which lead to the degrees of Bachelor of Arts, Bachelor of Business Administration, and Bachelor of Science in Cartography.

BACHELOR OF ARTS

Work leading to the degree of Bachelor of Arts is available (1) with a major in the General Studies Curriculum and (2) with a departmental major. Many courses required for departmental majors are available only on campus.

REQUIREMENTS FOR ADMISSION TO CANDIDACY

The degree of Associate in Arts in the College of General Studies (see pages 24-25), or the equivalent, and permission of the Dean are required. Admission to Bachelor's candidacy after completing the requirements for the degree of Associate in Arts is not automatic; students must apply to the Dean for transfer to the Bachelor's program. With the permission of the Dean, students with limited deficiencies in the requirements for admission may be conditionally admitted to degree candidacy while they make up academic deficiencies.

A conference concerning plans for study is required of each applicant for admission to candidacy. Appointments may be made with a Field Representative or the Assistant Dean (Academic Affairs), Telephone: 965-2350.

ADVANCED STANDING

In addition to credit allowed in transfer from other accredited colleges or universities, see "From Higher Institutions", pages 11-12, advanced standing may be obtained by validating examinations, service schools, and correspondence courses. From any combination of these sources, the maximum credit that may be obtained is 30 semester hours. The maximum credit obtained from any one of these sources may not exceed that stated on page 12. No credit may be obtained in this way, however, if the student has been credited with the maximum of 30 semester hours toward the degree of Associate in Arts.

REQUIREMENTS FOR THE DEGREE

RESIDENCE

The last 30 semester hours, including at least 12 hours in the major field, must be completed in residence in the College, unless special permission is granted by the Dean to take work elsewhere. This requirement applies to students transferring within the University as well as to students transferring from other institutions. Summer work and the 15 hours taken in order to be considered for degree candidacy may be counted in residence, but in no case may the period of residence aggregate less than 30 weeks. For regulations governing military students who are transferred when they are within 6 semester hours of their degree, see page 19.

Transfers.—Transfer students from other universities who have partially or substantially met the major requirements are required to complete satisfactorily 12 semester hours of approved work in the major field in the College of General Studies. This work will count as part of the minimum (30 semester hours) residence requirement. (For regulations concerning transfer within the University, see page 13.)

SCHOLARSHIP

The system of grading and computing scholarship is described in detail on pages 15-16. For regulations concerning probation, suspension, and readmission, see pages 16-17.

To remain in good standing, a student must maintain a general quality-point index of 2.00 and a quality-point index of at least 2.50 in his major.

CURRICULUM

The satisfactory completion of 60 semester hours, as set forth in one of the following curricula, is required.

GENERAL STUDIES CURRICULUM

Preregistration counseling is recommended to adapt this curriculum to the student's objectives or employment responsibilities and aims. For appointments call the College of General Studies, Telephone 965-2350.

Students planning to work toward a Master's degree in Columbian College of Arts and Sciences; the School of Government, Business, and International Affairs; or the School of Education are advised to plan their programs of study toward the Bachelor's degree so that they will meet the prerequisite requirements of the school or college of their choice.

Candidates for the degree of Bachelor of Arts registered in the General Studies Curriculum select courses, approved by the Dean or Assistant Deans, from two of the following divisions, one of which constitutes the major and the other the minor.

Faculty Adviser: Richard Baker Simons, Ph.D., Assistant Dean (Academic Affairs) of the College of General Studies. Building F, Room 15 (706 Twentieth Street NW.), Telephone 965-2350

1. **The Division of Languages and Literatures.**—The departments of Art, Classical Languages and Literatures, English, Germanic Languages and Literatures, Journalism, Romance Languages and Literatures, and Slavic Languages and Literatures.
2. **The Division of Mathematics and Physical Sciences.**—The departments of Chemistry, Geology, Mathematics, Physics, and Statistics.
3. **The Division of the Natural Sciences.**—The departments of Botany, Microbiology, Physiology, Psychology, and Zoology.
4. **The Division of the Social Sciences.**—The departments of Economics, Education*, Geography and Regional Science, Government and Business, History, International Affairs, Philosophy, Political Science, Religion, Sociology and Anthropology, and Speech.

Semester
Hours

Major division	24
(Courses are to be selected, with the approval of the adviser, from appropriate fields of study listed in the student's major division. Eighteen of the required 24 hours must be in courses with departmental numbers above 100.)	

* Only 12 semester hours of professional education courses may be applied towards a Bachelor of Arts degree in the College of General Studies

	Semester Hours
Minor division	12
(Courses are to be selected, with the approval of the adviser, from appropriate fields of study listed in the student's minor division.)	
Elective	24
Total (of which at least 30 semester hours must be in courses with departmental numbers above 100).....	60

DEPARTMENTAL MAJORS

Students who elect a major of the type offered in Columbian College of Arts and Sciences or the School of Government, Business, and International Affairs should consult the catalogue of the appropriate school for requirements of a given major. Any deviation from these requirements must be approved by the chairman of the department concerned and the Dean of the College of General Studies.

BACHELOR OF BUSINESS ADMINISTRATION CURRICULUM

Faculty Adviser: George Conner, M.B.A., Assistant Professor of Business Administration. Hall of Government, Room 310 (710 Twenty-first Street NW.), FEderal 8-0250, Extension 667

The following curriculum leading to the degree of Bachelor of Business Administration is available to students in the College of General Studies only. Entrance and advanced standing requirements are the same as those stated on pages 11-12. Residence and scholarship requirements for the degree are the same as those for the degree of Bachelor of Arts (see pages 28-29).

	Semester Hours
Acct 1-2: Introductory Accounting	6
Acct 193: Business Budgeting	3
Anthro 1, Soc 2, or Psych 8.....	3
Anthro 1: Man, Culture, and Society I (3)	
Soc 2: Man, Culture, and Society II (3)	
Psych 8: Psychology of Adjustment (3)	
BA 101: Introduction to Business.....	3
BA 102: Fundamentals of Management.....	3
BA 105: Personnel Management	3
BA 131: Business Finance	3
BA 141: Basic Marketing Management.....	3
BA 161: Commercial Law: Contracts, Sales, Agency, and Bailments.....	3
BA 162: Commercial Law: Negotiable Instruments, Property, Mortgages.....	3
BA 198: Case Problems in Management.....	6
Econ 1-2: Principles of Economics.....	3
Econ 121: Money and Banking.....	6
Engl 1 or 1X, 2: English Composition.....	6
* Language or Literature.....	
Engl 51-52: Introduction to English Literature (3-3)	
Engl 71-72: Introduction to American Literature (3-3)	
Engl 91-92: Introduction to European Literature (3-3)	
Fren 3-4: Second-year French (3-3)	
Fren 51-52: Survey of French Literature and Civilization (3-3)	
Germ 3-4: Second-year German (3-3)	

* This requirement is waived for students who offer 4 years of acceptable high school work in a single foreign language.

Semester
Hours

Germ 51-52: Introduction to German Literature (3-3)	
Rus 3-4: Second-year Russian (3-3)	
Rus 91-92: Introduction to Russian Literature (3-3)	
Rus 93-94: Introduction to Slavic (non-Russian) Literature (3-3)	
Span 3-4: Second-year Spanish (3-3)	
Spanish 51-52: Survey of Spanish Literature and Civilization (3-3)	
Math 15, 16: Finite Mathematics I-II.....	6
Pol Sc 9-10: Government of the United States.....	6
Psych 1: General Psychology	3
Sciences	6-8
Biol 1-2: Introductory Biology (4-4)	
Chem 3-4: Fundamentals of Physical Science (4-4)	
Chem 11-12: General Chemistry (4-4)	
Geol 1-2: Introductory Geology (3-3)	
Geol 1 and	
Geol 12: Introductory Geology (3); Rocks, Fossils, and Minerals (3)	
Physics 1-2: General Physics (4-4)	
Stat 51: Introduction to Business and Economic Statistics.....	3
Elective (Speech is recommended, students interested in Foreign Commerce include Geography 52).....	22-24
	105
Group Option. (To be selected from one of the following groups).....	15
Total.....	120

Foreign Commerce.—Business Administration majors who wish to specialize in foreign commerce may request a modification of the above requirements. The modified major excludes some of the above required courses and adds others, such as a third year of foreign language, foreign markets, exporting and importing, economic geography, and other courses relating to overseas trade. Each program must be approved by the adviser.

All Business Administration majors, except those in foreign commerce, must complete the required courses listed above, plus the group option. Selection of group option courses must be made in consultation with the adviser. Normally no more than 6 semester hours may be taken in an option other than the one selected. Consent of the adviser must be obtained if the student wishes such modification of his option group.

GROUP OPTIONS

Nine areas of specialization are open to Business Administration majors. The 15 hours taken in each of these options require the approval of the adviser. The group option and the individual courses within the option should be selected *no later than the beginning of the second semester of the junior year.*

Group I—General Business: The following courses provide the basic academic foundation for general administrative and supervisory positions.

Semester
Hours

Acct 101: Cost Accounting	3
Acct 121-22: Intermediate Accounting	6
BA 107: Labor-Management Contracts	3
BA 109: Office Management	3
BA 113: Real Estate	3
BA 121: Risk Management	3
BA 122: Life Insurance and Estate Planning.....	3
BA 136: Credit Management	3
BA 138: Investments	3
BA 143: Marketing Research	3
BA 145: Sales Management	3

	Semester Hours
BA 150: Procurement and Materials Management.....	3
BA 171: Principles of Transportation.....	3
BA 175: Introduction to Foreign Trade.....	3
BA 181: Manufacturing Production	3
BA 191: Business Reports and Analyses.....	3
Econ 101: Economic Analysis	3
Econ 105: Business Cycles	3
Econ 165: Government Control of Economic Activity.....	3
Geog 125: Transportation Complexes	3
Geog 127: World Population and Settlement.....	3
Hist 174: Economic History of the United States.....	3
Speech 121: Group Discussion and Conference Leadership.....	3

Group II—Personnel Management: The following courses provide the basic academic foundation for such positions as personnel manager, employee relations manager, and employment manager in business and government service.

	Semester Hours
BA 106: Problems in Personnel Management.....	3
BA 107: Labor-Management Contracts	3
BA 181: Manufacturing Production	3
BA 191: Business Reports and Analyses.....	3
BA 193: Management Communication	3
BA 195: Controllorship	3
Journ 143: Industrial Communications	3
Journ 145: Principles and Problems of Public Relations.....	3
Psych 129: Motivational Factors in Personality.....	3
Psych 131: Psychological Tests	3
Psych 144: Personnel Psychology	3
Speech 121: Group Discussion and Conference Leadership.....	3

Group III—Finance: The following courses provide the basic academic foundation for such positions as credit analyst, supervisor in a financial institution, bond cashier, trust officer, bank examiner, and similar positions in federal or international financial institutions.

	Semester Hours
Acct 111: Financial Statement Analysis.....	3
Acct 121-22: Intermediate Accounting	6
BA 113: Real Estate	3
BA 121: Risk Management	3
BA 136: Credit Management	3
BA 138: Investments	3
BA 163: Law in Relation to the Form of Business Units.....	3
BA 181: Manufacturing Production	3
Econ 101: Economic Analysis	3
Econ 105: Business Cycles	3
Econ 123: Monetary Theory and Policy.....	6
Econ 161-62: Public Finance and Taxation.....	6
Stat 111-12: Business and Economic Statistics I-II.....	6

Group IV—Marketing: The following courses provide the basic academic foundation for such positions as sales manager, circulation manager, route superintendent, product development manager, buyer, promotion manager, and purchasing agent.

	Semester Hours
BA 136: Credit Management	3
BA 142: Marketing Management Problems.....	3
BA 143: Marketing Research	3
BA 145: Sales Management	3

	Semester Hours
BA 147: Advertising	3
BA 150: Procurement and Materials Management.....	3
BA 158: Traffic Management	3
BA 171: Principles of Transportation.....	3
BA 175: Introduction to Foreign Trade.....	3
BA 176: Exporting and Importing.....	3
BA 178: International Business Operations.....	3
BA 181: Manufacturing Production	3
BA 191: Business Reports and Analyses.....	3
BA 195: Controllership	3
Econ 101: Economic Analysis	3
Econ 105: Business Cycles	3
Journ 145: Principles and Problems of Public Relations.....	3
Psych 148: Psychology of Advertising and Consumer Behavior.....	3
Stat 111-12: Business and Economic Statistics I-II.....	6

Group V—Controllership: The following courses provide the basic academic foundation for the position of controller in business and government service.

	Semester Hours
Acct 101: Cost Accounting	3
Acct 111: Financial Statement Analysis.....	3
Acct 121-22: Intermediate Accounting	6
Acct 181: Accounting Systems	3
Acct 191: Advanced Accounting	3
BA 109: Office Management	3
BA 113: Real Estate	3
BA 121: Risk Management	3
BA 163: Law in Relation to the Form of Business Units.....	3
BA 171: Principles of Transportation.....	3
BA 191: Business Reports and Analyses.....	3
BA 195: Controllership	3
Econ 105: Business Cycles	3
Econ 165: Government Control of Economic Activity.....	3
Stat 111-12: Business and Economic Statistics I-II.....	6

Group VI—Economics: The following courses provide the basic academic foundation for such positions as financial economic analyst, industrial economic analyst, and market research analyst in business and government.

	Semester Hours
BA 171: Principles of Transportation.....	3
BA 172: Public Utilities	3
Econ 101-2: Economic Analysis	6
Econ 105: Business Cycles	3
Econ 141: Unionism and Collective Bargaining.....	3
Econ 142: Labor Economics	3
Econ 161-62: Public Finance and Taxation.....	6
Econ 165: Government Control of Economic Activity.....	3
Econ 181-82: International Economics	6
Geog 125: Transportation Complexes	3
Geog 127: World Population and Settlement.....	3
Stat 111-12: Business and Economic Statistics I-II.....	6

Group VII—Statistics: The following courses provide the basic academic foundation for such positions as financial statistician, planning statistician, industrial statistician, and rate analyst in business and government.

	Semester Hours
Stat 91: Principles of Statistical Methods.....	3
Stat 110: Quality Control Techniques.....	3

	Semester Hours
Stat 111-12: Business and Economic Statistics I-II.....	6
Stat 117: Analysis of Variance I.....	3
Stat 118: Correlation and the Chi-square Test I.....	3
Stat 155: Introduction to Mathematical Probability.....	3
Stat 157-58: Mathematical Statistics	6

Group VIII—Transportation and Traffic Management: The following courses provide the basic academic foundation for management positions in transportation firms and in the traffic departments of other types of business firms and government agencies. The program should also aid in the preparation for the examinations for membership in the American Society of Traffic and Transportation.

	Semester Hours
BA 158: Traffic Management	3
BA 171: Principles of Transportation.....	3
BA 172: Public Utilities	3
BA 173: Commercial Motor Transportation.....	3
BA 174: Commercial Air Transportation.....	3
BA 175: Introduction to Foreign Trade.....	3
Econ 101: Economic Analysis	3
Geog 125: Transportation Complexes	6
Geog 141-42: Urban Settlement	3
Hist 174: Economic History of the United States.....	3
Stat 111: Business and Economic Statistics I.....	3

Group IX—Automatic Data Processing: Open only to students with a quality-point index in excess of 3.00.

	Semester Hours
Math 15-16: Finite Mathematics I and II.....	6
BA 219: Digital Computer Programming Concepts.....	3
BA 220: Comparative Digital Computer Systems.....	3
BA 221: Application of Digital Computers.....	3

BACHELOR OF SCIENCE IN CARTOGRAPHY

The College of General Studies offers a four-year curriculum designed to prepare students for the degree of Bachelor of Science in Cartography.

ENTRANCE REQUIREMENTS

The entrance requirements are the same as those stated on pages 11-12, with the exceptions noted below under "Advanced Standing".

ADVANCED STANDING

Thirty semester hours of credit may be granted upon the successful completion of validating examinations. No credit will be given for correspondence schools or service schools.

REQUIREMENTS FOR THE DEGREE

The residence and scholarship requirements for the degree of Bachelor of Science in Cartography are the same as those stated on pages 28-29 for the degree of Bachelor of Arts.

CURRICULUM

To be recommended by the faculty for graduation, candidates for the degree of Bachelor of Science in Cartography are required to complete the following curriculum of 130 semester hours.

Faculty Adviser: Rolland Hardy, Ph.D., Associate Professorial Lecturer in Cartography, Building I, Room 202 (2135 G Street N.W.), Federal 8-0250, Extension 287 or 298

	Semester Hours
Cart 1: Map Interpretation	3
Cart 11: Cartographic Drafting and Descriptive Geometry.....	3
Cart 12: Topographic Surveying	3
Cart 13: Higher Surveying	3
Cart 17-18: Elementary Photogrammetry	6
Cart 110: Map Projections	2
Cart 111: Map Reproduction	1
Cart 155: Elementary Geodesy	3
Cart 156: Geodetic Astronomy	3
Cart 160: Theory of Errors and Geodetic Adjustments.....	3
Cart 191-92: Map and Chart Construction.....	6
Chem 11-12: General Chemistry	8
Engl 1 or 1X, 2: English Composition	6
Geog 51: Introduction to Geography.....	3
Geog 52: World Regions	3
Geog 115-16: Physical Geography	6
Geog 124: Land Capabilities	3
Geog 125: Transportation Complexes	3
Geol 105-6: Fundamentals of Geophysics.....	6
Math 21: Calculus I	3
Math 22: Calculus II	3
Math 23: Calculus III	3
Math 24: Calculus IV	3
Math 111: Mathematics for Engineers and Physicists I.....	3
Math 112: Mathematics for Engineers and Physicists II.....	3
Oceanog 101-2: Introductory Oceanography	6
Physics 1-2: General Physics	8
Physics 51-52: Introduction to Experimental Physics.....	4
Social Studies: (any one of the following two-semester courses) ¹	6
Econ 1-2: Principles of Economics (3-3)	
Hist 39-40: The Development of European Civilization in Its World Context (3-3)	
Hist 71-72: The Development of the Civilization of the United States (3-3)	
Pol Sc 9-10: Government of the United States (3-3)	
Anthro 1, Soc 2: Man, Culture, and Society (3-3)	
Elective	14
Total.....	130

The Master's Degrees

Curricula for the degrees of Master of Science in Financial Management, Master of Science in Governmental Administration, and Master of Science in Personnel Administration are offered for adults with successful work experience who find it essential to take most of their graduate studies off-campus. Installations where these degree programs are available are indicated under the section in this Catalogue related to Off-Campus Centers, see pages 53-75. Courses leading to these degrees may be offered elsewhere as the demand warrants. Additional curricula will be established when the need becomes apparent.

All the work in these three curricula may be taken off-campus. If it should become necessary, courses may be taken on campus. In all cases the University standards for graduate study are maintained.

A curriculum leading to the degree of Master of Science in International Affairs is offered for the students and faculty of the Air War College, the Army War College, the National War College, the Naval War College, and the Central Intelligence Agency.

A curriculum leading to the degree of Master of Science in Business Administration is offered for students and faculty at the Industrial College of the Armed Forces, the Command and Staff College of Air University, and military and civilian employees of the Army at Fort Belvoir, Virginia.

A curriculum leading to the degree of Master of Science in Public Administration is offered for students and faculty at the command and Staff College of Air University.

Graduate students who plan to work toward Master's degrees in another school or college of the University may enroll for graduate courses in the College of General Studies with the approval of the dean of the school or college in which they are enrolled. In the School of Government, Business, and International Affairs and the School of Education, a maximum of 6 hours of approved off-campus work will be accepted at the time of matriculation for the degree and 6 additional hours of approved courses will be permitted off-campus after matriculation.

COUNSELING SERVICE

An advisory service, which is the joint responsibility of the agency sponsoring the program and the University, is available to all Master's candidates. Regular members of the Faculty of the University are available as curriculum advisers in the various specialized fields.

REQUIREMENTS FOR ADMISSION TO DEGREE CANDIDACY

To be admitted to degree candidacy the applicant must have (1) an approved Bachelor's degree (120 semester hours, which conform essentially to the requirements

for a Bachelor's degree in the College of General Studies) from an accredited higher institution; (2) credit (totaling 6 semester hours), with the grade of *B* (undergraduate) or *B* (graduate), for two courses approved by the academic adviser and taken in the College of General Studies prior to admission to candidacy*; and (3) a quality-point index of 3.00 (*B*) in the undergraduate major. If the applicant's work history gives evidence of more competence than his previous academic record indicates, he may be admitted to candidacy on the basis of satisfactory completion of 12 semester hours of work approved by his academic adviser, acceptable results of scholastic aptitude tests, or both.*

ADVANCED STANDING*

A maximum of 6 semester hours of advanced standing may be credited toward the degree by transfer of credit for approved graduate work taken at an accredited college or university.

REQUIREMENTS FOR THE DEGREES

RESIDENCE

A minimum of 24 semester hours of graduate work must be completed while registered as a degree candidate in the College of General Studies. Thesis seminar (6 semester hours) may be included in the 24 hours of course work taken in residence. A graduate student who transfers from another division of the University is required to have a minimum of 12 hours of course work as a degree candidate in the College of General Studies.

SCHOLARSHIP†

A student whose scholarship is unsatisfactory may be suspended by the Dean upon recommendation of the Committee on Scholarship.

THESIS

Theses are required of candidates for the degrees of Master of Science in Business Administration, Master of Science in International Affairs, and Master of Science in Public Administration.

With the approval of the adviser, a thesis may be substituted for 6 semester hours of elective credit toward the degrees of Master of Science in Financial Management, Master of Science in Governmental Administration, and Master of Science in Personnel Administration. (See page 20.)

The thesis subject must be approved by the director of the thesis and the faculty adviser and presented to the Dean no later than the date announced in the calendar.

The thesis in its final form must be approved by the director of the thesis and the

* Not applicable to candidates for the degrees of Master of Science in Business Administration, Master of Science in International Affairs, or Master of Science in Public Administration in the War College program.

† The required quality-point index a student must maintain for the Master's degree and the quality-point index which will result in suspension for poor scholarship will be announced at the beginning of the fall semester 1964-65.

faculty adviser and presented to the Dean no later than the date announced in the calendar. Printed copies of detailed regulations regarding the form and reproduction of the thesis are available in the Office of the Dean.

Payment of tuition for the thesis entitles the candidate, during the academic year of registration, to the advice and direction of the member of the faculty under whom the thesis is to be written. In case a thesis is unfinished an additional successive academic year may be granted without further tuition payment. The student must, however, be registered in residence during this period. If preparation of the thesis extends beyond the two-year period the student must register for it again and pay tuition on the same basis as for a repeated course.

COURSE SUBSTITUTION

For any course substitution it is the responsibility of the student to get written approval from the faculty adviser and the Dean prior to registration. Forms for requesting course substitution are available at the College of General Studies.

COMPREHENSIVE EXAMINATIONS

The Master's candidate is required to pass a written Comprehensive Examination. The examinations are conducted at the University: December 5, 1964, for students graduating in February 1965; April 3, 1965, for students graduating in June, 1965; and July 17, 1965, for students who are completing degree requirements in the summer sessions. Comprehensive Examination dates for the off-campus centers at Carlisle, Pa.; Maxwell Air Force Base, Ala.; and Newport, R. I., will be announced by the Co-ordinators of the respective Centers. At the time of the examination a candidate may be required to submit to the examination committee copies of articles published, pertinent staff studies, reports, etc., prepared during the period of graduate study, as additional evidence of Master's competency.

The Degrees of Master of Science in: Financial Management, Government Administration, Personnel Administration

The following programs of study are effective for all students admitted to Master's candidacy subsequent to September 1, 1961. Students admitted prior to September 1, 1961, are permitted to continue the program of studies in effect on the date of admission.

PREREQUISITE

A student must meet the general requirements for admission to degree candidacy as listed on pages 36-37. If he does not submit an acceptable undergraduate degree with a B average, he may be required to take additional course work as approved by the faculty adviser.

PLANS OF STUDY

Two plans of study lead to the degrees of Master of Science in Financial Management, Master of Science in Governmental Administration, and Master of Science in

Personnel Administration. *Plan I* requires a minimum of 30 semester hours of graduate credit, including a thesis of 6 hours. *Plan II* requires a minimum of 33 semester hours of graduate credit, including a 3 semester hour course in Research Methods.

MASTER OF SCIENCE IN FINANCIAL MANAGEMENT

Faculty Adviser: Karl Ernest Stromsem, Ph.D., Professor of Public Administration.
Hall of Government, Room 206 (710 Twenty-first Street NW.), Federal 8-0250, Extension 493 or 242

REQUIRED COURSES

The student must complete course work as approved by the Faculty Adviser from the following courses:

	Semester Hours
Acct 211-12: Managerial Accounting.....	6
BA 296: Seminar: Financial Management.....	3
BPA 201: Advanced Administrative Management.....	3
BPA 207: Human Factors in Administration.....	3
BPA 268: Management Engineering.....	3
PA 213: Administration in Government.....	3
PA 251: Governmental Budgeting.....	3
PA 252: Seminar: Planning and Programming.....	3
Stat 101: Basic Principles of Statistical Methods or	
BPA 204: Quantitative Factors in Administration.....	3

Plan I	Semester Hours	Plan II	Semester Hours
Required courses	24	Required courses	30
BA 299: Thesis Seminar	3	BPA 295: Research Methods	3
BA 300: Thesis	3		
Total.....	30	Total.....	33

ELECTIVE COURSES

A student whose previous background makes it unnecessary for him to take all of the prescribed courses in this program may substitute elective courses, with the written approval of his faculty adviser. A form for this purpose is available at the College of General Studies. Electives may be selected from courses listed under the Personnel Administration Master's program on page 41. In exceptional cases, the faculty adviser may approve other courses as electives.

MASTER OF SCIENCE IN GOVERNMENTAL ADMINISTRATION

Faculty Adviser: Harry Robert Page, M.B.A., Assistant Professor of Business Administration.
Hall of Government, Room 205 (710 Twenty-first Street NW.), Federal 8-0250, Extension 507

REQUIRED COURSES

	Semester Hours
BPA 201: Advanced Administrative Management.....	3
BPA 206: Personnel Management	3
BPA 207: Human Factors in Administration.....	3

		Semester Hours
BPA 268: Management Engineering		3
PA 213: Administration in Government.....		3
PA 251: Governmental Budgeting		3
PA 252: Seminar: Planning and Programming.....		3
PA 260: Seminar: Policy Formulation and Administration.....		3
Plan I	Semester Hours	
Required courses	24	
BA 299: Thesis Seminar	3	
BA 300: Thesis	3	
Total.....	30	
Plan II	Semester Hours	
Required courses	24	
BPA 295: Research Methods	3	
Elective	6	
Total.....	33	

ELECTIVE COURSES

A student whose previous academic preparation makes it unnecessary for him to take all of the prescribed courses in this program may substitute elective courses, with the written approval of the faculty adviser. A form for this purpose is available at the College of General Studies. Electives may be selected from courses listed under the Personnel Administration Master's program on page 41. In exceptional cases, the faculty adviser may approve other courses as electives.

MASTER OF SCIENCE IN PERSONNEL ADMINISTRATION

Faculty Adviser: Joe Lee Jessup, M.B.A., Professor of Business Administration.
Hall of Government, Room 312 (710 Twenty-first Street NW.). FEderal 8-0250, Extension 543

REQUIRED COURSES

The student must complete at least one course in each of the five major areas:

	Semester Hours
1. Personnel Principles	
BA 209: Seminar: Personnel Management.....	3
BPA 206: Personnel Management	3
2. Human Relations and Motivation	
BPA 207: Human Factors in Administration.....	3
Psych 245: Seminar: Employee Motivation and Morale.....	3
3. Labor Relations	
Econ 241: Unionism, Collective Bargaining, and Labor Economics.....	3
Econ 244: Problems in Unionism, Collective Bargaining, and Labor Economics	3
4. Management	
BPA 201: Advanced Administrative Management.....	3
5. Quantitative Methods	
BPA 204: Quantitative Factors in Administration.....	3
Stat 101: Basic Principles of Statistical Methods.....	3
Plan I	Semester Hours
Required courses	15
Elective	9
Thesis: BA 299-300, PA 299-300, or Psych 299-300.....	6
Total.....	30
Plan II	Semester Hours
Required courses	15
Elective	15
BPA 295: Research Methods.....	3
Total.....	33

ELECTIVE COURSES

A student whose previous background makes it unnecessary for him to take all of the prescribed courses in this program may substitute elective courses with the written approval of the faculty adviser. A form for this purpose is available at the College of General Studies. Electives may be selected from courses listed below. In exceptional cases, the faculty adviser may approve other related courses as electives.

	Semester Hours
BPA 205: Seminar: Communication and Executive Action.....	3
BPA 268: Management Engineering	3
BPA 287: Relation of Government to Business.....	3
BA 210: The Personnel Manager.....	3
BA 218: Survey of Data Processing.....	3
BA 288: Executive Leadership	3
BA 291: Seminar: Business Management.....	3
BA 297: Case Studies in Business Administration.....	3
PA 211: Problems of Governmental Organization.....	3
PA 213: Administration in Government.....	3
PA 221: Staff Functions in Government.....	3
PA 232: Federal Personnel Procedures.....	3
PA 233: Seminar: Manpower Development and Utilization.....	3
PA 251: Governmental Budgeting	3
PA 261: The Public and the Administrator.....	3
PA 272: Seminar: Public Personnel Administration.....	3
PA 298: Case Studies in Public Administration.....	3
Econ 246: Foreign Labor Movements.....	3
Ed 257: Occupational and Educational Information.....	3
Ed 258: Techniques of Counseling.....	3
Ed 263: Employee Training	3
Psych 131: Psychological Tests	3
Psych 144: Personnel Psychology	3
Psych 209: Seminar: Psychology of Motivation.....	3
Psych 231: Test Construction	3
Psych 244: Seminar: Job and Worker Analysis.....	3
Psych 246: Seminar: Personnel Measurement Techniques.....	3
Psych 254: Seminar: Group Dynamics.....	3
Psych 255: Seminar: Techniques of Opinion and Attitude Measurements.....	3
Psych 264: Sensitivity Training: Human Relations Laboratory Course.....	3
Psych 265: Theory and Design in Human Relations Training.....	3
Stat 102: Basic Principles of Statistical Methods.....	3
Stat 104: Statistics in Psychology and Education.....	3

The Degree of Master of Science in International Affairs

Faculty Adviser: Charles Edward Galbreath, Ph.D., Professor of International Economics, Building F, Room 36 (706 Twentieth Street NW.), Telephone 965-2350

This is a special degree program offered in cooperation with the Air War College, Air University, Maxwell Air Force Base, Alabama; the Army War College, Carlisle Barracks, Pennsylvania; the National War College, Fort McNair, Washington, D. C.; and the Naval War College, Newport, Rhode Island. It is open only to current students and faculty and to graduates eligible under the contractual arrangements.

PREREQUISITE

An approved Bachelor's degree from an accredited college or university.

REQUIRED COURSES

	Semester Hours
I Af 260: Fundamentals of National Power*	3
I Af 261: International and United States Foreign Policy*	3
I Af 262: National Security Policy of the United States*	3
I Af 299-300: Thesis*	6
Elective (from the following or related courses as approved by the faculty adviser)	15
Econ 251: Economic Development (3 or 4†)	
Hist 246: Seminar: Eurasian History (3 or 4†)	
I Af 297: Readings in International Affairs* (1, 2, or 3)	
Pol Sc 172: Organization and Function of the United Nations (3 or 4†)	
Pol Sc 212: Seminar: Comparative Government and Politics (3 or 4†)	
Pol Sc 283: Topics in International Law (3 or 4†)	
Pol Sc 285: Diplomacy since World War II (3 or 4†)	
Anthro 263: Culture Contact and Change (3 or 4†)	
Total.....	30

The Degree of Master of Science in Business Administration

These special degree programs are offered in cooperation with the Industrial College of the Armed Forces, Fort McNair, Washington, D. C.; the Command and Staff College, Air University, Maxwell Air Force Base, Alabama; and at Fort Belvoir, Virginia.

PREREQUISITE

An approved Bachelor's degree from an accredited college or university.

INDUSTRIAL COLLEGE OF THE ARMED FORCES

Faculty Adviser: James Carlton Dockera, Ph.D., Professor of Finance, Hall of Government, Room 201 (710 Twenty-first Street NW.), FEderal 8-0250, Extension 512, 539

Open only to current students and faculty and to graduates of the classes of 1958 through 1960 of the Industrial College of the Armed Forces.

REQUIRED COURSES

	Semester Hours
Acct 215: Survey of Managerial Accounting.....	3
BPA 201: Advanced Administrative Management.....	2
BPA 207: Human Factors in Administration.....	2
BPA 280-81-82: Managerial Aspects of National Security†.....	6
BA 235: Financial Management	2
BA 241: Advanced Marketing Management.....	2
BA 297: Case Studies in Business Administration.....	3
BA 299: Thesis Seminar	3
BA 300: Thesis	3
Econ 217: Survey of Economics.....	3
Total.....	30

* War Colleges curricula only.

† Four semester hours of credit allowed only for degree candidates in the Master of Science in International Affairs curricula in the War Colleges.

‡ Industrial College of the Armed Forces curriculum only

ELECTIVE COURSES

A student whose previous academic preparation makes it unnecessary for him to take all of the prescribed courses in this program may substitute elective courses with the written approval of the faculty adviser.

AIR UNIVERSITY

Faculty Adviser: Paul Bentley Jones, M.B.A., Assistant Professor of Business Administration, Building 823, Room 9 (Maxwell Air Force Base, Alabama). Telephone: 265-5621, Extension 86113 or 86194.

Open only to current students and faculty of the Command and Staff College.

REQUIRED COURSES

	Semester Hours
Acct 215: Survey of Managerial Accounting.....	2
BPA 201: Advanced Administrative Management.....	2
BPA 207: Human Factors in Administration.....	2
BPA 280-81: Managerial Aspects of National Security*.....	8
BA 235: Financial Management.....	3
BA 241: Advanced Marketing Management.....	2
BA 297: Case Studies in Business Administration.....	2
BA 299: Thesis Seminar.....	3
BA 300: Thesis.....	3
Econ 217: Survey of Economics.....	3
Stat 101: Basic Principles of Statistical Methods.....	2
Total.....	30

ELECTIVE COURSES

A student whose previous academic preparation makes it unnecessary for him to take all of the prescribed courses in this program may substitute elective courses with the written approval of the faculty adviser.

FORT BELVOIR

Faculty Adviser: George Frederick Conner, M.B.A., Assistant Professor of Business Administration, Hall of Government, Room 310 (710 Twenty-first Street N.W.), Federal 8-0250, Extension 667.

Open only to military and civilian employees of the Army and to other government employees, by permission of the Commanding Officer of Fort Belvoir and the Chairman of the Department of Government and Business.

PREREQUISITE

A student must meet the general requirements for admission to degree candidacy as listed on pages 36-37. In addition, he must have 9 hours of mathematics; one course each in Accounting, Business and Public Administration, and Statistics; and two courses in Economics.

* Command and Staff College, Air University curriculum only.

REQUIRED COURSES

	Semester Hours
BPA 201: Advanced Administrative Management.....	3
BPA 204: Quantitative Factors in Administration.....	3
BPA 207: Human Factors in Administration.....	3
BA 299: Thesis Seminar	3
BA 300: Thesis	3
(A) Area of Concentration.....	9
(B) Elective	6
Total.....	30

A. Area of Concentration*

A student must complete one of the three following areas of concentration:

- (1) BA 218: Survey of Data Processing (3)
BA 227: Linear Programming (3)
BA 228: Introduction to Operations Research for Management (3)
- (2) BA 219: Digital Computer Programming Concepts (3)
BA 220: Comparative Digital Computer Systems (3)
BA 221: Application of Digital Computers (3)
- (3) BA 218: Survey of Data Processing (3)
BA 228: Introduction to Operations Research for Management (3)
BPA 268: Management Engineering (3)

B. Elective*

In addition to an area of concentration a student may select 6 semester hours of courses primarily, but not exclusively, from the following:

- Acct 215: Survey of Managerial Accounting (3)
Acct 293: Budget Preparation and Administration (3)
BA 250: Contract Administration (3)
Stat 207: Operations Analysis (3)
Stat 271-72: Statistical Information Theory (3-3)

The Degree of Master of Science in Public Administration

AIR UNIVERSITY

Faculty Adviser: Lowell Cyrus Smith, M.B.A., Assistant Professor of Business and Public Administration. Building 823, Room 9 (Maxwell Air Force Base, Alabama).
Telephone 265-5621, Extension 86113 or 86194

This is a special degree program offered in cooperation with the Command and Staff College, Air University, Maxwell Air Force Base, Alabama. It is open only to current students and faculty of the Command and Staff College.

PREREQUISITE

A Bachelor's degree from an accredited college or university.

REQUIRED COURSES

	Semester Hours
Acct 215: Survey of Managerial Accounting.....	3
BPA 201: Advanced Administrative Management.....	3
BPA 207: Human Factors in Administration.....	3

* The area of concentration and all electives must be approved by the faculty adviser.

Semester
Hours

BPA 280-81: Managerial Aspects of National Security*	8
PA 213: Administration in Government	2
PA 251: Governmental Budgeting	2
PA 252: Seminar: Planning and Programming	2
PA 298: Case Studies in Public Administration	2
PA 299-300: Thesis	6
Stat 101: Basic Principles of Statistical Methods	2
Total	30

ELECTIVE COURSES

A student whose previous academic preparation makes it unnecessary for him to take all of the prescribed courses in this program may substitute elective courses with the written approval of the faculty adviser.

Conferences, Seminars, and Special Projects

The College of General Studies annually offers a variety of conferences and seminars, many of which are held at Airline Center, situated near Warrenton, Virginia.

Among these is a series of informal seminars for students and leaders from other countries visiting the United States under the Department of State educational and cultural exchange program. Each seminar is specifically planned to give the participants opportunities to (1) discuss with American experts in the various areas their observations and experiences in the United States, (2) clear up any misconceptions they may have about this country, and (3) stimulate the exchange of knowledge and create greater understanding between our nations.

A Forum for International Medical Scholars is held each year in cooperation with the School of Medicine for foreign doctors working in American hospitals under the auspices of the Department of Health, Education, and Welfare. Other overseas students have attended a Special Language and Orientation Program for students sponsored by the Agency for International Development, the School of Education joining with the College of General Studies in this project.

Seminars and workshops are planned to meet the particular needs of professional and business groups. Included among these are the annual Administrative Leadership Laboratory, offered in conjunction with the Center for the Behavioral Sciences, and a semester of seminars for the teachers of Fauquier and adjacent counties in Virginia. Additional special projects implemented by the College of General Studies are a program leading to the degree of Master of Science in Public Administration for executives of the Veterans Administration, and courses in Resources Manage-

* Command and Staff College, Air University curriculum only.

ment for the Navy's Bureau of Yards and Docks, and in Space Power Systems for interested industries.

For further information consult Robert Carter Burns, A.M., Staff Associate (Conferences and Seminars), College of General Studies, 706 Twentieth Street NW.; Telephone: 965-2350.

Continuing Education and Noncredit Programs

In recognition of the impact of the increasing complexity and specialization of modern life, the College of General Studies sponsors credit and noncredit courses, institutes, lectures, and programs designed to encourage continuing education for all throughout life.

Courses in the liberal arts are offered to widen the horizons of those who have been forced to specialize to meet the requirements of technical professions. Refresher courses and seminars are offered to help specialists keep abreast of the explosion of knowledge and to facilitate the return of mature women to academic life. Courses in writing and speaking provide opportunities for increasing skill in self-expression. Programs to develop leadership are planned in cooperation with organizations.

A regular program of noncredit courses is offered each semester by the College. However, informal programs and courses of any desired length may be initiated at any time at the request of any interested group. They are held both on-campus and off-campus. There are no entrance requirements.

Information about entering or initiating courses in continuing education may be obtained by consulting Olive Jean McKay, A.M., Ed.D., Staff Associate (Continuing Education), College of General Studies; Telephone: 965-2350.

Among the courses offered by the College of General Studies, are the following. Unless otherwise specified, all courses are noncredit.

COURSES DESIGNED TO INCREASE PERSONAL COMPETENCE IN EVERYDAY LIVING

PSYCHOLOGY APPLIED TO EVERYDAY LIVING

A course designed for the man or woman seeking a better understanding of himself and others with whom he lives and works. The purpose is to show him how to apply the insights of modern psychology to his everyday life at home and on the job, as well as in his relations with his friends and fellow citizens. Topics covered are the role of psychology in modern life, why people are different, how to learn effectively, understanding personality difficulties, how personality develops, motivating others, utilizing aptitudes and abilities, and planning a successful career.

CREATIVITY AND CREATIVE LEADERSHIP

A lecture-discussion course that provides background, techniques, and practice helpful for originating new ideas; describes blocks to creativity which reduce capacity to innovate if unrecognized and unintercepted; provides practice in idea evaluation; describes techniques for "supervising" creative people and shows how creativity stimulates personal growth.

MANAGING YOUR MONEY

A course on personal finance designed to provide for the consumer basic facts and principles to guide him in making wise decisions with reference to insurance, savings, investments, borrowing, credit, and budgeting.

INVESTMENTS

"How to Invest from \$50 to \$50,000" is frequently offered in answer to popular demand. Topics include insurance, wills, bank deposits, government bonds, real estate, various types of securities, the New York Stock Exchange, mutual funds, investment advisory services, and the importance of fitting the financial plan to the individual.

INVESTMENT MANAGEMENT

A course in management for those with a basic knowledge of the stock market and investment principles. Topics include the selection of stocks most suitable for specific objectives.

PLANNING FOR RETIREMENT

A ten-session course used by many large business and industrial firms to help men and women plan for retirement.

COURSES OFFERED TO IMPROVE VOCATIONAL AND PROFESSIONAL COMPETENCE

TYPING REFRESHER

Diagnostic and remedial practice on electric or manual typewriters.

STENOGRAPHIC REFRESHER

Dictation directed toward a review of brief forms, word beginnings, word endings, the 3,000 most frequently used words in the English language, with 80 to 100 word dictation.

WRITTEN COMMUNICATION

A review of the principles of clear and effective writing, particularly as it is a concern of governmental correspondence. Ten sessions, classroom demonstration and discussion of textbook assignments; ten sessions, testing and individual conferences.

PREPARATION OF SUMMARIES

Training in accurate summarizing of classified documents and information in readable form.

MANAGEMENT COMMUNICATION

Elements of the communication process; problems in communication; basic principles of effective communication, psychological and sociological aspects of communication; and problems of specific communication efforts.

PROFESSIONAL WRITING (Introductory)

The essentials of writing techniques. Manuscripts submitted for consideration and criticism of the teacher and class. Analysis of magazine writing opportunities for free-lance writers.

PROFESSIONAL WRITING (Advanced)

Emphasis on improving quality and techniques to a professional, salable level. An interval of two weeks between classes gives the student a greater opportunity for manuscript preparation. Major emphasis is upon article writing.

WRITING FOR CHILDREN

A noncredit elementary workshop course is offered for beginning writers during the fall semester. An advanced workshop is offered in the spring semester.

EXECUTIVE SEMINAR: EFFECTIVE ORAL COMMUNICATION

The techniques for effective communication and presentation with assigned subject material. An evaluation of the interviewing technique, counseling, and group participation. A special program designed for the Supply and Maintenance Command, U. S. Army.

EFFECTIVE SPEECH COMMUNICATION

Principles of effective speech communication, including practice in the organization, delivery, and evaluation of presentations commonly encountered in management situations.

ADMINISTRATIVE DEVELOPMENT

The techniques of management and instruction. Part of the Administrative Development Program of the Office of the Adjutant General, Department of the Army.

STUDIES IN MANAGEMENT

Studies of modern concepts of the management function and the background of modern management theory, the tools of management, human factors in management, direction of programs, and formulation of policies.

MANAGEMENT FOR RESEARCH, DEVELOPMENT, AND TESTING LABORATORIES

Designed to train executives in development of over-all managerial skills. Planned to give executives a general familiarity with tasks, problems, techniques, and methods of management; to relate these general principles to functioning of their specialized business activities; and to provide them with a forum for discussing common problems and interchanging views, knowledge, and experience.

MATHEMATICAL AND STATISTICAL TOPICS FOR ACCOUNTANTS

An introduction to some of the mathematical concepts and techniques relative to the work of the accountant which will include lectures on probability statistics with

particular emphasis on sampling techniques as aids to managerial decision-making and linear programming.

BUSINESS MANAGEMENT INSTITUTE

An institute on modern management principles and techniques for small business executives. Offered in cooperation with the Small Business Administration to improve skill and ability in solving practical business problems.

ENVIRONMENTAL TECHNOLOGY

A series of lectures on "The Dynamic Environment" offered in cooperation with the Institute of Environmental Sciences of the National Academy of Sciences.

COURSES PLANNED FOR THE ENRICHMENT OF HOME AND FAMILY LIFE

BUILDING OR BUYING YOUR HOME

A course designed to help the person who is planning to build or buy a home get the utmost value for the money he spends and achieve a home that will actually meet the family's needs. It covers such topics as: the services of an architect; site selection; good design; materials and methods of construction, with relative costs; plumbing, heating, and ventilation; lighting; maintenance and alterations; and financing. Given in cooperation with the Washington-Metropolitan chapter of The American Institute of Architects.

INSTITUTE FOR PARENTS

Emphasizes *understanding* in four areas of study: the gifted child, reading problems, modern school methods, and the early adolescent. Primarily to help parents understand their children in relation to themselves as parents, to the school, and to the community.

UNDERSTANDING MODERN MATHEMATICS

This course, primarily for parents and laymen, is an introduction to the changes taking place in elementary school mathematics today. The lectures will explore the trend toward a more meaningful, dynamic, and exciting instructional program in mathematics. Topics covered are: (1) why changes are occurring, (2) the nature of the changes, (3) the effect of the changes on methods of teaching, and (4) implications of the changes for mathematics instruction.

WIDENING HORIZONS AND INCREASING ENJOYMENT OF LIFE THROUGH THE LIBERAL ARTS

ENJOYING THE THEATRE

A course designed to give the theatre-goer a deeper understanding and appreciation of the theatre. It is devoted to an appreciation and enjoyment of dramatic art; its nature; its origins and development; the elements of theatre; the role of director, actor, stage design, and audience.

UNDERSTANDING THE ARTS

A course designed to help the student better understand the meaning of art through

a number of compositions in painting, sculpture, architecture, and the motion picture. Lectures and discussions, with colored slides, prints, and motion pictures.

UNDERSTANDING MODERN DANCE THROUGH PARTICIPATION

Through lecture, film, demonstration, and personal participation the student explores the history of the dance. Training is given in fundamental dance techniques to give the body strength, flexibility, and control. Principles of rhythm, dynamics, and the use of space and other elements underlying dance movement and composition are emphasized.

INTRODUCTION TO THE CULTURAL HISTORY OF RUSSIA

A survey of the Russian cultural heritage from the origins of ancient Russia to the present. Lectures, discussion, and visual aids. Topics include: the origins of Russia and the culture of its earliest inhabitants. Western and Eastern influences, adoption of Orthodoxy and the subsequent growth of Russian-Byzantine culture, the medieval period, Peter the Great and Russia's westernization, the origins of modern Russia, Russian culture and civilization during the sixty years before the Revolution, the Soviet period.

GROWTH OF POLITICAL PARTIES IN THE UNITED STATES

Chronological treatment of the growth of American political parties. Factors in our political history relevant to the current party struggle and the future course of politics: role of party conventions; importance of party platforms; influence of particular personalities; continuance of certain issues; impact of wars and other disasters; mechanisms for achieving party victory; and, with special attention, the relationship between minor parties and splinter groups and the fundamental two-party nature of our political system. Parties considered socially, ethically, and politically.

SPECIAL PROGRAM FOR WOMEN

In accordance with the University's policy of encouraging mature men and women to continue their education throughout life, the College of General Studies establishes programs and classes at hours and places most convenient to busy persons who must fit their studies into schedules crowded with demands of professional and family life. As a further extension of this policy, the College will begin, in the fall semester of 1964, a special program for young homemakers who wish to continue their studies and for mature women who have interrupted their work toward degrees to meet the demands of marriage and family life. Courses will be offered during the day in off-campus centers in various parts of the Greater Washington Metropolitan Area when children are at school.

The program will include an orientation seminar each semester. *Developing New Horizons for Women*, a workshop designed to assist women in developing their potential by an analysis of themselves as individuals and as women; by exploring educational, occupational, and community service opportunities; by examining and solving problems encountered when entering or re-entering the educational and occupational worlds. There will be opportunities for individual counseling and assistance in planning degree and nondegree programs of continuing education.

PROGRAM SERVICE FOR ORGANIZATIONS

Courses or lectures may be initiated either by the College or by civic clubs, church groups, trade associations, parent-teacher associations, or other organizations interested in promoting and organizing formal or informal programs of study for their members, securing assistance in setting up and developing their own leadership training courses, or receiving specialized advice or assistance.

Typical courses offered in the past have been the following.

PARLIAMENTARY PROCEDURE

A short workshop in basic procedures for conducting successful meetings through the skillful application of parliamentary law. The course will help the presiding officer to expedite the business of the organization and at the same time to assist the membership in achieving adequate expression of all points of view while arriving at consensus. It will also help the members of organizations to gain the opportunity of explaining their positions and of participating fully in the decision-making process.

PROGRAM PLANNING FOR ORGANIZATIONS

Designed especially for civic and club workers. Topics include: planning individual programs, public relations, the responsibility of leadership, and exploring projects and activities for a particular group.

ORIENTATION AND TRAINING PROGRAMS FOR STUDENTS FROM OTHER LANDS

AGENCY FOR INTERNATIONAL DEVELOPMENT

The College Preparatory Workshop for Foreign Students, a series of class meetings led by experienced university teachers, introduces the foreign student to the system of higher education in the United States. Students are instructed and given practice in classroom procedures, examination techniques, note taking, report writing, the use of the library, and outside study.

AMERICAN SPEECH AND DICTION

Designed for employees of foreign embassies. Articulation drills, stress and intonation patterns in "standard" American English, discussion of dialect differences, and vocabulary-building exercises. Individually designed exercises and daily tape recordings.

TAX ADMINISTRATION

Principles and techniques of the internal administration of a tax agency. The assessment, collection, audit, including excise, property and personal tax. A special course designed for foreign participants under the Agency for International Development.

ADMISSION AND REGISTRATION

A simplified system of admission and registration is used in noncredit courses. Such courses are open to any individual interested in enrolling. When a noncredit course is organized at the request of some particular agency or group, admission may

be restricted to the students recommended by the sponsoring organization. Classes may be limited in size in order to maintain the standards desired.

FEEES

The tuition fees for noncredit courses are determined by the length and nature of the course.

Reading Center

The Reading Center, Binney Hall, 2018 Eye Street NW., offers individual diagnostic and corrective services for all levels: primary, elementary, secondary, and adult. In addition, special reading improvement classes are conducted on the high school and adult levels.

A complete diagnosis includes psychological tests: vision, hearing, and dominance tests; and the various reading and spelling tests. Results are interpreted, and a written report is presented in conference with the parents or the individual.

The special reading classes for high school students and adults are offered throughout the year at stated intervals. Emphasis is placed on improvement of vocabulary, speed, comprehension, and study skills. Machines such as the tachistoscope, rate accelerator, and controlled reader are used for increasing speed of comprehension.

Fees

Individual Diagnosis	\$45.00
Individual Reading Instruction.....	6.00 a lesson
Semi-individual Instruction	5.00 a lesson
Small Groups with common reading difficulties.....	3.75 a lesson
Students currently enrolled in the University	3.25 a lesson

All fees for diagnostic and corrective work are payable in advance at the Office of the Cashier. Reading Improvement Course fees are payable in full at the time of registration. For further information, consult Miss Mary E. Coleman, A.M., Director, or Miss Joanne B. Parker, A.B., A.M. in Ed., Assistant Director, Binney Hall, 2018 Eye Street NW.; FEederal 8-0250, Extension 491 or 598.

Off-Campus Centers

The College of General Studies has offered programs in the Centers listed below.

CENTRAL INTELLIGENCE AGENCY

Washington, D. C. 20505

Training Officer: William C. Rein, Registrar

Building: Headquarters, Room 1D1617

Telephone: 351-3101

Field Representative for the University: Michael H. Jessep

Telephone: 965-2350

Type of Course Offered: Undergraduate program leading to the degrees of Associate in Arts and Bachelor of Arts; graduate program leading to the degree of Master of Science in International Affairs

Length of Courses: Fifteen weeks

Open only to CIA employees

CIVIL SERVICE COMMISSION, WASHINGTON, D. C. 20415

(Member of Federal Triangle Educational Association)*

Training Officers: William H. Rima, Jr., Director of Personnel; James S. Keener, Personnel Management Specialist

Building: 1900 E Street NW., Room 1R54 (Mr. Rima); Room 1600 (Mr. Keener)

Telephone: 343-6301 (Mr. Rima); 343-6118 (Mr. Keener)

Field Representative for the University: Alexander G. Rose

Telephone: 965-2350

Type of Course Offered: Undergraduate program leading to the degrees of Associate in Arts and Bachelor of Arts; graduate programs leading to the degrees of Master of Science in Financial Management, Master of Science in Governmental Administration, and Master of Science in Personnel Administration

Length of Courses: Fifteen weeks

Open to employees of the Civil Service Commission and to personnel of other government agencies by permission

DEPARTMENT OF COMMERCE

Bureau of the Census, Washington, D. C. 20233

Training Officers: James Vawter, Chief, Employee Development Branch, Personnel Division; John Hickey, Training Officer (General Field), Personnel Division

Building: FOB 3, Room 1370, Suitland, Maryland

Telephone: 440-1524

Field Representative for the University: Alexander G. Rose

Telephone: 965-2350

* An organization of Federal Agencies situated in the Federal Triangle Area of downtown Washington, D. C.

Type of Course Offered: Undergraduate courses leading to the degrees of Associate in Arts and Bachelor of Arts

Length of Courses: Fifteen weeks

Open to all employees of the Bureau of the Census and the Naval Hydrographic Office, and to other government employees by permission

Bureau of Domestic and International Business, Washington, D. C. 20230

(Member of Federal Triangle Educational Association)

Training Officers: Robert Blais and Mrs. Jane deLauder, Employee Development Officers

Building: Commerce Department Building, Room 7416, 14th Street and Constitution Avenue NW.

Telephone: WOrth 7-2760

Field Representative for the University: Alexander G. Rose

Telephone: 965-2350

Type of Course Offered: Undergraduate program leading to the degrees of Associate in Arts and Bachelor of Arts; graduate programs leading to the degrees of Master of Science in Financial Management, Master of Science in Governmental Administration, and Master of Science in Personnel Administration

Length of Courses: Fifteen weeks

Open to employees of the Department of Commerce and to personnel of other government agencies by permission

Coast and Geodetic Survey, Washington, D. C. 20230

(Member of Federal Triangle Educational Association)

Training Officers: Mrs. Mariel Christian, Training Branch, Personnel and Safety Division; Paul F. Murphy, Employee Development Officer

Building: Washington Science Center, Room 827, 11800 Old Georgetown Road, Rockville, Maryland

Telephone: 949-5310, Extension 273

Field Representative for the University: Alexander G. Rose

Telephone: 965-2350

Type of Course Offered: Undergraduate courses leading to the degrees of Associate in Arts, Bachelor of Arts, and Bachelor of Science in Cartography

Length of Courses: Fifteen weeks

Open to all employees of the Department of Commerce and to other government employees by permission

National Bureau of Standards, Washington, D. C. 20234

Registrar: Mrs. Virginia Maxwell

Building: The Manse, Room 102, Connecticut Avenue and Van Ness Street NW.

Telephone: EMerson 2-4040, Extension 366 or 7400

Field Representative for the University: Jack W. Charles

Telephone: 965-2350

Type of Course Offered: Undergraduate program leading to the degrees of Associate in Arts and Bachelor of Arts

Length of Courses: Fifteen weeks

Open to all employees of the National Bureau of Standards—also to all employees of other government agencies and to all American citizens, providing they meet the formal prerequisites

Patent Office, Washington, D. C. 20231

(Member of Federal Triangle Educational Association)

Training Officer: Willis Hokans, Employee Development Officer

Building: Commerce Department Building, Room 3625, 14th Street and Constitution Avenue NW.

Telephone: WOrth 7-2871

Field Representative for the University: Alexander G. Rose

Telephone: 965-2350

Type of Course Offered: Undergraduate program leading to the degrees of Associate in Arts and Bachelor of Arts; graduate programs leading to the degrees of Master of Science in Financial Management, Master of Science in Governmental Administration, and Master of Science in Personnel Administration

Length of Courses: Fifteen weeks

Open to employees of the Department of Commerce and to personnel of other government agencies by permission

Weather Bureau, Washington, D. C. 20230

Training Officer: Albert V. Carlin, Chief, Training Section

Building: 4330 MacArthur Blvd., Room G103

Telephone: 382-4194

Field Representative for the University: Jack W. Charles

Telephone: 965-2350

Type of Course Offered: Graduate courses in meteorology

Length of Courses: Fifteen weeks

Open to all government employees by permission of the Weather Bureau

DEPARTMENT OF DEFENSE

The Pentagon, Washington, D. C. 20310

After-hours Training Program: John L. Bennett, Field Representative for the University

Room: Reception center on the Concourse

Telephone: OXford 7-3141 or 965-2350

Education Office U. S. Air Force

Education Director: Mrs. Lois K. Roberts

Room: 5D476

Telephone: OXford 7-7074 or 7-1863

Education Office U. S. Army

Education Director: Stuart R. Westerlund

Room: 3C147

Telephone: OXford 7-8015 or 7-2823

Type of Course Offered: Undergraduate courses leading to the degrees of Associate in Arts, Associate in Secretarial Administration, Bachelor of Arts, and Bachelor of Business Administration; graduate programs leading to the degrees of Master of

Science in Financial Management, Master of Science in Governmental Administration, and Master of Science in Personnel Administration

Length of Courses: Fifteen weeks in fall and spring semesters; eight weeks in Summer Sessions

Open only to active duty military personnel and Department of Defense civilians

Defense Supply Agency, Alexandria, Virginia 22314

Employee Development Officers: Spencer N. Roads and James T. Diffin

Building: 5. Room 145A

Telephone: OXford 8-8050 or 8-8093

Field Representative for the University: John L. Bennett

Telephone: 965-2350

Type of Course Offered: Undergraduate courses leading to the degrees of Associate in Arts, Associate in Secretarial Administration, Bachelor of Arts, and Bachelor of Business Administration; graduate programs leading to the degrees of Master of Science in Financial Management, Master of Science in Governmental Administration, and Master of Science in Personnel Administration

Length of Courses, Fifteen weeks in fall and spring semesters; eight weeks in Summer Sessions

Open to employees of the Defense Supply Agency and to personnel of other government agencies by permission

National Security Agency, Fort Meade, Maryland, 20755

Training Officer: James V. Donnelley

Building: 1W118

Telephone: Parkway 5-5400, Extension 7414

Field Representative for the University: Alexander G. Rose

Telephone: 965-2350

Type of Course Offered: Undergraduate program leading to the degrees of Associate in Arts, Bachelor of Arts, and Bachelor of Business Administration; graduate program leading to the degree of Master of Science in Personnel Administration

Length of Courses: Fifteen weeks

Open only to NSA employees

Department of the Air Force

Air Force Technical Applications Center, Alexandria, Virginia 20333

Training Officer: Capt. Glen Jackson, USAF

Building: 2525 Telegraph Road, Alexandria, Virginia

Telephone: OXford 5-1312

Field Representative for the University: John L. Bennett

Telephone: 965-2350

Type of Course Offered: Undergraduate program leading to the degrees of Associate in Arts and Bachelor of Arts

Length of Courses: Fifteen weeks

Open to military and civilian personnel of the Air Force Technical Applications Center

Air University Center

Maxwell Air Force Base, Montgomery, Alabama 36113

Education Officer: George D. Rastall

Building: 800, Room 213

Telephone: 265-5621, Extension 74234

Coordinator for the University at Maxwell: John Littleton Boone Atkinson

Building: 823

Telephone: 265-5621, Extensions 86113 and 86194

Field Representative for the University: Marvin J. Powers

Telephone: 965-2350

Types of Courses Offered:

Air War College—Graduate program leading to the degree of Master of Science in International Affairs

Air Command and Staff College—Undergraduate programs leading to the degrees of Bachelor of Arts and Bachelor of Business Administration; graduate programs leading to the degrees of Master of Science in Business Administration and Master of Science in Public Administration

Length of Courses: Fifteen weeks

Open to students and faculty of the Air War College and the Air Command and Staff College

Langley Air Force Base, Virginia 23365

Educational Consultant: Robert J. Dewey

Building: 1347

Telephone: 764-3520

Field Representative for the University: Marvin J. Powers

Telephone: 965-2350

Type of Course Offered: Undergraduate program leading to the degrees of Associate in Arts and Bachelor of Arts; graduate courses leading to the degree of Master of Science in Personnel Administration

Length of Courses: Eight weeks and fifteen weeks

Open to military and civilian personnel of the Air Force and to other government employees, by permission of the Commanding Officer of Langley Air Force Base

Department of the Army

Army Map Service, Washington, D. C. 20315

Training Officer: Jerome E. McClain

Building: Erskine Hall, 6500 Brooks Lane NW.

Telephone: 986-2385

Field Representative for the University: Gerrit TenBrink

Telephone: 965-2350

Type of Course Offered: Undergraduate program leading to the degree of Bachelor of Science in Cartography

Length of Courses: Fifteen weeks

Open to employees of the Army Map Service and other government employees by permission of the Commanding Officer of the Army Map Service

Army War College, Carlisle Barracks, Pennsylvania 17013

Project Officer: Lt. Col. John K. Brier, USA

Building: Root Hall, Room 113

Telephone: CHapel 3-4141, Extension 505

Coordinator for the University at Carlisle Barracks: William L. Tayler

Building: Root Hall, Room 122

Telephone: CHapel 3-4141, Extension 315

Field Representative for the University: Marvin J. Powers

Telephone: 965-2350

Type of Course Offered: Graduate program leading to the degree of Master of Science in International Affairs

Length of Courses: Fifteen weeks

Open to students and faculty of the Army War College

Fort Belvoir, Virginia 22060

Educational Adviser: Eric Eber

Building: T-1483

Telephone: 781-8500, Extension 27154

Field Representative for the University: Gerrit TenBrink

Telephone: 965-2350

Type of Course Offered: Undergraduate program leading to the degrees of Associate in Arts, Bachelor of Arts, Bachelor of Science in Cartography; graduate program leading to the degree of Master of Science in Business Administration

Length of Courses: Eight and fifteen weeks

Open to military and civilian personnel of the Army and to other government employees, by permission of the Commanding Officer of Fort Belvoir

Fort Detrick, Frederick, Maryland 21701

Education Adviser: John A. Ports

Building: Civilian Personnel Office

Telephone: MONument 3-4111, Extension 3159

Type of Course Offered: Business Management and Biochemistry courses

Length of Courses: Fifteen weeks

Open to civilian employees of Headquarters, Fort Detrick

Fort Eustis, Virginia 23604

Educational Adviser: John Williams

Building: Educational Development Services, Building S-711—Lee Blvd. and 12th Street

Telephone: 877-5251, Extension 2204 or 21508

Field Representative for the University: Marvin J. Powers

Telephone: 965-2350

Type of Course Offered: Graduate program leading to the degree of Master of Science in Personnel Administration

Length of Courses: Eight and fifteen weeks

Open to military and civilian personnel of the Army and to other government employees, by permission of the Commanding Officer of Fort Eustis

Fort McNair, Washington, D. C. 20315

(Undergraduate Program)

Educational Adviser: Miss Margaret Lockwood

Building: Post Education Center, Building 20A, Second Floor

Telephone: Jackson 7-9400, Extension 263

Field Representative for the University: John L. Bennett

Telephone: 965-2350

Type of Course Offered: Undergraduate program leading to the degrees of Associate in Arts and Bachelor of Arts

Length of Courses: Eight and fifteen weeks

Open to military and civilian personnel of the Army and to other government employees, by permission of the Commanding Officer of Fort McNair

Fort George G. Meade, Maryland 20755

Training Officer: Gustaf E. Berglund

Building: 393, Army Education Center

Telephone: 677-6421

Field Representative for the University: Alexander G. Rose

Telephone: 965-2330

Type of Course Offered: Graduate programs leading to the degrees of Master of Science in Financial Management, Master of Science in Governmental Administration, and Master of Science in Personnel Administration

Length of Courses: Fifteen weeks

Open to military and civilian personnel of the Army and to other government employees by permission of the Commanding Officer of Fort George G. Meade

Fort Monroe, Virginia 23351

Educational Director: Paul Rabenkamp

Building: T-183, Education Center, Fort Monroe

Telephone: 727-2454

Field Representative for the University: Marvin L. Powers

Telephone: 965-2350

Type of Course Offered: Undergraduate program leading to the degrees of Associate in Arts and Bachelor of Arts; graduate program leading to the degree of Master of Science in Personnel Administration

Length of Courses: Undergraduate courses, eight weeks; graduate courses, fifteen weeks

Open to military and civilian personnel of the Army and to other government employees, by permission of the Commanding Officer of Fort Monroe

Fort Myer, Virginia 22208

Educational Adviser: Miss Margaret Lockwood

Building: Post Education Center, Building 604, South Area

Telephone: JACKSON 7-9400, Extension 268

Field Representative for the University: John L. Bennett

Telephone: 965-2350

Type of Course Offered: Undergraduate program leading to the degrees of Associate in Arts and Bachelor of Arts

Length of Courses: Eight and fifteen weeks

Open to military and civilian personnel of the Army and to other government employees, by permission of the Commanding Officer of Fort Myer.

Department of the Navy**Main Navy Building, Washington, D. C. 20360**

Training Officers: Edward Goemaat, Head, Training Branch, DCPD; Miss Kathleen V. Sullivan, Employee Development Officer

Building: Main Navy Building, Room 0116, Constitution Avenue at 18th Street NW.

Telephone: OXFORD 6-6155

After-hours Training Program: Jack W. Charles, Field Representative for the University

Telephone: 965-2350

Type of Course Offered: Undergraduate courses leading to the degrees of Associate in Arts, Associate in Secretarial Administration, and Bachelor of Arts; graduate programs, leading to the degrees of Master of Science in Financial Management, Master of Science in Governmental Administration, and Master of Science in Personnel Administration

Length of Courses: Fifteen weeks

Open to military and civilian personnel of the Department of Defense

Bureau of Naval Personnel, Washington, D. C. 20370

Training Officers: CDR J. J. Creamer, USN, Head, Officer Education and Training Branch; DeWitt Fisher, Deputy Head; Paul L. Frantz, Special Programs Coordinator

Building: Arlington Annex, Room 3713

Telephone: OXFORD 4-2403 or 4-2776

Field Representative for the University: Jack W. Charles

Telephone: 965-2350

Type of Course Offered: Special courses in Human Relations and Management, Public Speaking for Naval Personnel, and Foreign Languages

Length of Courses: Fifteen weeks

Open to military personnel on active duty in the Department of the Navy by quota assigned to the various bureaus and offices

Bureau of Naval Weapons, Washington, D. C. 20360

Training Officers: S. P. Dudzik, Head, Employee Training and Development Section; James L. Miller, Assistant Head; Mrs. Honorah B. Peter, Training Officer

Building: Munitions Building, Room 2124, Constitution Avenue at 19th Street NW.
Telephone: OXford 6-7341

Field Representative for the University: Jack W. Charles
Telephone: 965-2350

Type of Course Offered: Special courses in Human Relations and Management

Length of Courses: Fifteen weeks

Open to civilian and military personnel on active duty in the Bureau of Naval Weapons by quota assigned to the various divisions and offices, and to civilian employees of the Department of the Navy by permission

Bureau of Ships, Washington, D. C. 20360

Training Officer: Mrs. Edna K. Trudeau, Employee Development Officer, Employee Development Branch

Building: Main Navy Building, Room 1427, Constitution Avenue at 18th Street NW.

Telephone: OXford 6-2927

Field Representative for the University: Jack W. Charles

Telephone: 965-2350

Type of Course Offered: Graduate programs leading to the degrees of Master of Science in Financial Management, Master of Science in Governmental Administration, and Master of Science in Personnel Administration

Length of Courses: Fifteen weeks

Open to military and civilian personnel of the Department of Defense

Bureau of Yards and Docks, Washington, D. C. 20390

Training Officers: Robert J. Wilson, Manager, Training Branch; Mrs. Margaret A. Blackledge

Building: Yards and Docks Annex, Room 1A-95 Memorial Drive and H Road, Arlington, Virginia

Telephone: OXford 5-4367

Field Representative for the University: Jack W. Charles

Telephone: 965-2350

Type of Courses: Graduate programs leading to the degrees of Master of Science in Financial Management, Master of Science in Governmental Administration, and Master of Science in Personnel Administration

Length of Courses: Fifteen weeks

Open to military and civilian personnel of the Navy and to other government employees, by permission of the Commanding Officer

David Taylor Model Basin, Carderock, Maryland 20007

Training Officer: Leonard Ackerman, Head, Training Branch

Building: 121, Room 226

Telephone: EMpire 5-2600, Extension 394

Field Representative for the University: Jack W. Charles

Telephone: 965-2350

Type of Course Offered: Special in-service training courses arranged by the Training Officer

Length of Courses: Fifteen weeks

Open to military personnel and civilian employees of the David Taylor Model Basin and to other government employees, by permission of the Commanding Officer of the installation

Military Sea Transportation Service, Washington, D. C. 20390

Training Officers: Maurice V. Foreman, Director, Training Division; John W. Meadows, Assistant to the Director

Building: T-8, Room 1215, 3800 Newark Street NW.

Telephone: OXford 6-9620

After-hours Training Program: Jack W. Charles, Field Representative for the University

Telephone: 965-2350

Type of Course Offered: Graduate and Special Courses in Management

Length of Courses: Fifteen weeks

Open to civilian and military personnel of the Military Sea Transportation Service and to other government employees, by permission of the Commanding Officer of the installation

National Naval Medical Center, Bethesda, Maryland 20014

Information and Education Officer: Lt. Henrietta R. Lanier, USN

Building: 7, Room 32, Information and Education Office

Telephone: 497-4585

Field Representative for the University: Jack W. Charles

Telephone: 965-2350

Type of Course Offered: Undergraduate program leading to the degrees of Associate in Arts and Bachelor of Arts

Length of Courses: Fifteen weeks

Open to military and civilian personnel of the Navy, employees of the National Institutes of Health, and to other government employees by permission of the Commanding Officer of the National Naval Medical Center

Naval Oceanographic Office, Suitland, Maryland 20390

Employee Development Officers: Willis L. Tressler, Director; Edmund J. Klukowski, Employee Development Officer

Building: FOB 3, Room G-126

Telephone: REDwood 6-2700, Extension 592

Field Representative for the University: Jack W. Charles

Telephone: 965-2350

Type of Course Offered: Undergraduate program leading to the degrees of Associate in Arts, Bachelor of Arts, and the Bachelor of Science in Cartography

Length of Courses: Fifteen weeks

Open to military and civilian personnel of the Navy, employees of the Census Bureau, and to other government employees in the Department of Defense, by permission of the Naval Oceanographic Office

Naval Propellant Plant, Indian Head, Maryland 20640

Training Officer: Leland Cook, Director of Education and Community Relations

Building: D 325, Industrial Relations Office

Telephone: Riverside 3-2111, Extension 591

Field Representative for the University: Jack W. Charles

Telephone: 965-2350

Type of Course Offered: Undergraduate and graduate courses

Length of Courses: Fifteen weeks

Open to military and civilian personnel of the Navy and to other government employees and civilians, by permission of the Commanding Officer of Naval Propellant Plant

Naval Research Laboratory, Washington, D. C. 20390

Training Officers: William J. McLaughlin, Head, Training Branch; E. C. Reinhardt, Head, Science Education Section

Building: 43, Rooms 102 and 113, 4555 Overlook Avenue SW.

Telephone: 5741-856 or 5741-858

Field Representative for the University: Jack W. Charles

Telephone: 965-2350

Type of Course Offered: Undergraduate and graduate courses

Length of Courses: Fifteen weeks

Open to military and civilian personnel of the Navy at the Naval Research Laboratory and other government employees, by permission of the Naval Research Laboratory

Naval Supply Center, Norfolk, Virginia 23511

Training Officers: Mrs. Mary K. Lawson, Director; Bernard A. La Barge, Industrial Relations Department

Building: W-143

Telephone: 444-2144 or 444-4912

Field Representative for the University: Marvin J. Powers

Telephone: 965-2350

Type of Course Offered: Graduate programs leading to the degrees of Master of Science in Financial Management, Master of Science in Governmental Administration, and Master of Science in Personnel Administration

Length of Courses: Fifteen weeks

Open to military and civilian personnel of the Navy and to other government employees, by permission of the Commanding Officer

Naval War College, Newport, Rhode Island 02841

Project Officer: CDR Jack E. Evans, USN

Building: Luce Hall, Room 114

Telephone: Viking 1-3021

Acting Coordinator for the University at Newport: James Kenneth McDonald
Building: Pringle Hall, Room 361
Telephone: Viking 7-2629

Field Representative for the University: Marvin J. Powers
Telephone: 965-2350

Type of Course Offered: Graduate program leading to the degree of Master of Science in International Affairs

Length of Courses: Fifteen weeks

Open to faculty and students of the Naval War College

Naval Weapons Laboratory, Dahlgren, Virginia 22448

Training Officer: Mac A. Curtis, Head, Employee Development Division
Building: Industrial Relations Building

Telephone: North 32511, Extension 609

Field Representative for the University: Jack W. Charles
Telephone: 965-2350

Type of Course Offered: Undergraduate and graduate courses in Physics

Length of Courses: Fifteen weeks

Open to military and civilian personnel of the Department of Defense and others by permission of the Commanding Officer of the installation

U. S. Marine Corps Schools, Quantico, Virginia 20390

Education Officer, Lt. Ardyth M. Phillips, USMC

Building: Special Services Building, Education Office, Little Hall

Telephone: Quantico 1000, Extension 26749

Field Representative for the University: Jack W. Charles
Telephone: 965-2350

Type of Course Offered: Undergraduate program leading to the degrees of Associate in Arts and Bachelor of Arts

Length of Courses: Eight and fifteen weeks

Open to military personnel and their dependents and civilian personnel attached to the Marine Corps Schools

U. S. Naval Academy, Annapolis, Maryland 21402

Coordinator for the Academy: William W. Jeffries, Senior Professor of English, History, and Government Department

Building: Maury Hall

Telephone: 268-7711, Extension 642

Field Representative for the University: Jack W. Charles
Telephone: 965-2350

Type of Course Offered: Graduate program leading to the degree of Master of Science in Personnel Administration and undergraduate courses

Length of Courses: Eight and fifteen weeks

Open to military and civilian personnel attached to the Academy and other personnel by permission of the Naval Academy

U. S. Naval School of Hospital Administration, Bethesda, Maryland 20014

Academic Adviser: LCDR Joseph Feith, MSC, USN

Building: 141, Room 131

Telephone: 497-4340

Field Representative for the University: Jack W. Charles

Telephone: 965-2350

Type of Course Offered: Undergraduate program leading to the degree of Bachelor of Arts

Length of Courses: Fifteen weeks

Open to military personnel assigned to duty under instruction at the U. S. Naval School of Hospital Administration

U. S. Naval Station, Washington, D. C. 20390

Training Officer: Mrs. Marie J. Muir, Supervisory Training Officer

Building: 172, Second Floor, M at 8th Street SE.

Telephone: OXford 8-3160 or 8-3188

Field Representative for the University: Jack W. Charles

Telephone: 965-2350

Type of Course Offered: Undergraduate program leading to the degrees of Associate in Arts and Bachelor of Arts; graduate courses in accounting, administration, and personnel management; special certificate program for supervisors to meet local in-service training needs

Length of Courses: Fifteen weeks

Open to military and civilian personnel of the Navy and to other government employees, by permission of the Commanding Officer

U. S. Navy Marine Engineering Laboratory, Annapolis, Maryland

Training Officer: Lorick F. Fox

Building: 3-A, Administration Building, Industrial Relations Department

Telephone: 268-7711, Extension 8210

Field Representative for the University: Jack W. Charles

Telephone: 965-2350

Type of Course Offered: Undergraduate and graduate courses

Length of Courses: Fifteen weeks

Open to military and civilian personnel of the Navy and to other government employees and civilians, by permission of the Commanding Officer

Joint Service Schools

Industrial College of the Armed Forces, Fort McNair,

Washington, D. C. 20315

Project Officer: Col. James Lake, USAF

Building: Industrial College of the Armed Forces, Room D277

Telephone: OXford 5-8322

Coordinator for the University: James C. Dockeray

Building: Hall of Government, Room 201, 710 Twenty-first Street NW.

Telephone: FEderal 8-0250, Extension 512 or 539

Field Representative for the University: Marvin J. Powers

Telephone: 965-2350

Type of Course Offered: Graduate program leading to the degree of Master of Science in Business Administration

Length of Courses: Fifteen weeks

Open to students and faculty of the Industrial College of the Armed Forces

National War College, Fort McNair, Washington, D. C. 20315

Project Officer: Col. Robert C. Cassibry, USA

Building: National War College, Room 116

Telephone: OXford 5-8404

Coordinator for the University: C. Edward Galbreath

Field Representative for the University: Marvin J. Powers

Telephone: 965-2350

Type of Course Offered: Graduate program leading to the degree of Master of Science in International Affairs

Length of Courses: Fifteen weeks

Open to students and faculty of the National War College

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

Social Security Administration

(Bureau of Old Age and Survivors Insurance)

Baltimore, Maryland 21235

Employee Development Officer: William B. Wiley, Chief, Educational Facilities Section

Building: Headquarters, Room 147

Telephone: 944-5000, Extension 2430 or 2429

Field Representative for the University: Alexander G. Rose

Telephone: 965-2350

Type of Course Offered: Undergraduate program leading to the degree of Associate in Arts and Bachelor of Arts; graduate programs leading to the degree of Master of Science in Financial Management, Master of Science in Governmental Administration, Master of Science in Personnel Administration

Length of Courses: Fifteen weeks

Open to employees of the Social Security Administration and to personnel of other governmental agencies by permission

DEPARTMENT OF JUSTICE, WASHINGTON, D. C. 20530

(Member of Federal Triangle Educational Association)

Training Officer: Daniel Keenan, Departmental Training Officer

Building: Justice Department Building, Room 1225, 10th Street and Pennsylvania Avenue NW.

Telephone: REpublic 7-8200, Extension 3124

Field Representative for the University: Alexander G. Rose
Telephone: 965-2350

Type of Course Offered: Undergraduate program leading to the degrees of Associate in Arts and Bachelor of Arts; graduate programs leading to the degrees of Master of Science in Financial Management, Master of Science in Governmental Administration, Master of Science in Personnel Administration

Length of Courses: Fifteen weeks

Open to employees of the Department of Justice and to personnel of other government agencies by permission

Federal Bureau of Investigation, Washington, D. C. 20535

Special Agent: William E. Clark, Personnel Office

Building: Justice Department Building, Room 4513, 9th Street and Pennsylvania Avenue NW.

Telephone: EXecutive 3-7100, Extension 402

Field Representative for the University: Alexander G. Rose

Telephone: 965-2350

Type of Course Offered: Undergraduate program leading to the degrees of Associate in Arts and Bachelor of Arts

Length of Courses: Fifteen weeks

Open to employees of the Federal Bureau of Investigation only

DEPARTMENT OF LABOR, WASHINGTON, D. C. 20210

(Member of Federal Triangle Educational Association)

Training Officers: James C. Stephens, Employee Development Officer; Kenneth Bate, Assistant Training Officer

Building: Labor Department Building, Room 6419, 14th Street and Constitution Avenue NW.

Telephone: 961-2101

Field Representative for the University: Alexander G. Rose

Telephone: 965-2350

Type of Course Offered: Undergraduate program leading to the degrees of Associate in Arts and Bachelor of Arts; graduate programs leading to the degrees of Master of Science in Financial Management, Master of Science in Governmental Administration, and Master of Science in Personnel Administration

Length of Courses: Fifteen weeks

Open to employees of the Department of Labor and to personnel of other government agencies by permission

DEPARTMENT OF STATE, WASHINGTON, D. C. 20520

Liaison Officer Daniel L. Quaid, Jr.

Building: Foreign Service Institute, State Annex 3, Room 2100, Arlington, Virginia

Telephone: DUDley 3-4180

Field Representative for the University: Jack W. Charles

Telephone: 965-2350

Type of Course Offered: Special courses designed for employees self-development

Length of Courses: Fifteen weeks

Open to employees of the Department of State, I.C.A., and U.S.I.A.

DEPARTMENT OF THE TREASURY, WASHINGTON, D. C. 20226

Bureau of Accounts

(Member of Federal Triangle Educational Association)

Training Officers: Miss Joyce Davenport and Ken Eriksson, Employment Development Officers

Building: Treasury Annex Number 1, Room 240, Pennsylvania Avenue and Madison Place NW.

Telephone: WOrth 4-5367

Field Representative for the University: Alexander G. Rose

Telephone: 965-2350

Type of Course Offered: Undergraduate program leading to the degrees of Associate in Arts and Bachelor of Arts; graduate programs leading to the degrees of Master of Science in Financial Management, Master of Science in Governmental Administration, and Master of Science in Personnel Administration

Length of Courses: Fifteen weeks

Open to employees of the Department of the Treasury and to personnel of other government agencies by permission

Bureau of Customs, Washington, D. C. 20226

(Member of Federal Triangle Educational Association)

Training Officers: James J. Doherty, Head, Employee Development Unit; Alfred F. Murphy, Employee Development Officer

Building: 2100 K Street NW.

Telephone: WOrth 4-2548

Field Representative for the University: Alexander G. Rose

Telephone: 965-2350

Type of Course Offered: Undergraduate program leading to the degrees of Associate in Arts and Bachelor of Arts; graduate programs leading to the degrees of Master of Science in Financial Management, Master of Science in Governmental Administration, and Master of Science in Personnel Administration

Length of Courses: Fifteen weeks

Open to employees of the Department of the Treasury and to personnel of other government agencies by permission

Bureau of Engraving and Printing, Washington, D. C. 20226

(Member of Federal Triangle Educational Association)

Training Officer: Mrs. Frances N. Nadeau, Employee Development Officer

Building: Industrial Relations Office, 14th and C Streets NW.

Telephone: WOrth 4-7571

Field Representative for the University: Alexander G. Rose

Telephone: 965-2350

Type of Course Offered: Undergraduate program leading to the degrees of Associate in Arts and Bachelor of Arts; graduate programs leading to the degrees of Master of Science in Financial Management, Master of Science in Governmental Administration, and Master of Science in Personnel Administration

Length of Courses: Fifteen weeks

Open to employees of the Department of the Treasury and to personnel of other government agencies by permission

Bureau of Narcotics, Washington, D. C. 20226

(Member of Federal Triangle Educational Association)

Training Officer: Walter Panich, Administrative Officer

Building: Coast Guard Building, Room 8000B, 1300 E Street NW.

Telephone: WOrth 4-2243

Field Representative for the University: Alexander G. Rose

Telephone: 965-2350

Type of Course Offered: Undergraduate program leading to the degrees of Associate in Arts and Bachelor of Arts; graduate programs leading to the degrees of Master of Science in Financial Management, Master of Science in Governmental Administration, and Master of Science in Personnel Administration

Length of Courses: Fifteen weeks

Open to employees of the Department of the Treasury and to personnel of other government agencies by permission

Coast Guard, Washington, D. C. 20226

(Member of Federal Triangle Educational Association)

Training Officers: Jasper L. Kranke, Supervisory Training Officer; Mrs. Eva Fletcher, Training Instructor

Building: U. S. Coast Guard Building, Room 4211, 1300 E Street NW.

Telephone: WOrth 4-5350

Field Representative for the University: Alexander G. Rose

Telephone: 965-2350

Type of Course Offered: Undergraduate program leading to the degrees of Associate in Arts and Bachelor of Arts; graduate programs leading to the degrees of Master of Science in Financial Management, Master of Science in Governmental Administration, and Master of Science in Personnel Administration

Length of Courses: Fifteen weeks

Open to employees of the Coast Guard and to personnel of other government agencies by permission

Internal Revenue Service, Washington, D. C. 20224

(Member of Federal Triangle Educational Association)

Training Officers: D. C. Barry, Chief, National Office Training Branch; Joel Pinnix, Miss Ruby Bennett, Employee Development Training Officers

Building: Internal Revenue Service Building, Room 4562, 12th Street and Constitution Avenue NW.

Telephone: WOrth 4-3931 (Mr. Barry and Miss Bennet), WOrth 4-4015 (Mr. Pinnix)

Field Representative for the University: Alexander G. Rose

Telephone: 965-2350

Type of Course Offered: Undergraduate program leading to the degrees of Associate in Arts and Bachelor of Arts; graduate programs leading to the degrees of Master

of Science in Financial Management, Master of Science in Governmental Administration, and Master of Science in Personnel Administration

Length of Courses: Fifteen weeks

Open to employees of the Department of the Treasury and to personnel of other government agencies by permission

DISTRICT OF COLUMBIA GOVERNMENT, WASHINGTON, D. C. 20001

(Member of Federal Triangle Educational Association)

Training Officers: Benjamin Ludwig, Training Officer; C. Howard Larson, Employee Development Assistant

Building: District of Columbia Government Building, Room 209, 499 Pennsylvania Avenue NW.

Telephone: NAtional 8-6000, Extension 2270

Field Representative for the University: Alexander G. Rose

Telephone: 965-2350

Type of Course Offered: Undergraduate program leading to the degrees of Associate in Arts and Bachelor of Arts; graduate programs leading to the degrees of Master of Science in Financial Management, Master of Science in Governmental Administration, and Master of Science in Personnel Administration

Length of Courses: Fifteen weeks

Open to employees of the District of Columbia Government and to personnel of other government agencies by permission

Department of Public Welfare

Children's Center, Laurel, Maryland 20810

Training Officer: Reginald Orem, Employee Development Officer

Building: Administration Building

Telephone: PArkway 5-3600, Extension 286

Field Representative for the University: Alexander G. Rose

Telephone: 965-2350

Type of Course Offered: Special courses in Psychology

Length of Courses: Fifteen weeks

Open to personnel of the Children's Center and to personnel of other District and federal government agencies by permission

District of Columbia General Hospital, Washington, D. C. 20003

Employee Management Relations Specialist: Miss Virginia Sage

Building: Administration Annex, District of Columbia General Hospital, 19th and C Streets SE.

Telephone: LIncoln 7-9200, Extension 336

Field Representative for the University: Michael H. Jessup

Telephone: 965-2350

Type of Course Offered: Undergraduate courses in Psychology

Length of Courses: Fifteen weeks

Open to employees of the District of Columbia General Hospital

FEDERAL AVIATION AGENCY, WASHINGTON, D. C. 20553

(Member of Federal Triangle Educational Association)

Training Officer: Miss Beverly McCarthy, Employee Development Officer
Building: T-3, Room 1215, 16th Street and Constitution Avenue NW.
Telephone: WOrth 7-3647

Field Representative for the University: Alexander G. Rose
Telephone: 965-2350

Type of Course Offered: Undergraduate program leading to the degrees of Associate in Arts and Bachelor of Arts; graduate programs leading to the degrees of Master of Science in Financial Management, Master of Science in Governmental Administration, and Master of Science in Personnel Administration

Length of Courses: Fifteen weeks

Open to employees of the Federal Aviation Agency and to personnel of other government agencies by permission

FEDERAL COMMUNICATIONS COMMISSION, WASHINGTON, D. C. 20554

(Member of Federal Triangle Educational Association)

Training Officer: Michael Martinez, Chief, Manpower Development and Utilization Branch

Building: New Post Office Building, Room 1207, 12th Street and Pennsylvania Avenue NW.

Telephone EXecutive 3-3620, Extension 165

Field Representative for the University: Alexander G. Rose
Telephone: 965-2350

Type of Course Offered: Undergraduate program leading to the degrees of Associate in Arts and Bachelor of Arts; graduate programs leading to the degrees of Master of Science in Financial Management, Master of Science in Governmental Administration, and Master of Science in Personnel Administration

Length of Courses: Fifteen weeks

Open to employees of the Federal Communications Commission and to personnel of other government agencies by permission

FEDERAL RESERVE BOARD, WASHINGTON, D. C. 20551

Training Officer: June A. Stetter, Administrative Assistant, Division of Personnel Administration

Building: Federal Reserve Building, 20th Street and Constitution Avenue NW.

Telephone: REpublic 7-1100, Extension 435

Field Representative for the University: Jack W. Charles
Telephone: 965-2350

Type of Course Offered: Undergraduate program leading to the degrees of Associate in Arts and Bachelor of Arts; graduate programs leading to the degrees of Master of Science in Financial Management, Master of Science in Governmental Administration, and Master of Science in Personnel Administration

Length of Courses: Fifteen weeks

Open to all government employees and others by permission

INTERSTATE COMMERCE COMMISSION, WASHINGTON, D. C. 20423

(Member of Federal Triangle Educational Association)

Training Officer: Dyrck van Duyl, Training Officer

Building: Interstate Commerce Building, Room 1418, 12th Street and Constitution Avenue NW.

Telephone: National 8-7460, Extension 7116

Field Representative for the University: Alexander G. Rose

Telephone: 965-2350

Type of Course Offered: Undergraduate program leading to the degrees of Associate in Arts and Bachelor of Arts; graduate programs leading to the degrees of Master of Science in Financial Management, Master of Science in Governmental Administration, and Master of Science in Personnel Administration

Length of Courses: Fifteen weeks

Open to employees of the Interstate Commerce Commission

NATIONAL SCIENCE FOUNDATION, WASHINGTON, D. C. 20036

Training Officer: E. Paul Broglio

Building: National Science Foundation Building, 19th Street and Constitution Avenue NW.

Telephone: 343-6578

Field Representative for the University: Jack W. Charles

Telephone: 965-2350

Type of Course Offered: Courses leading to the degrees of Associate in Arts and Bachelor of Arts

Length of Courses: Fifteen weeks

Open to all government employees by permission of the National Science Foundation

POST OFFICE DEPARTMENT, WASHINGTON, D. C. 20260

(Member of Federal Triangle Educational Association)

Training Officers: F. L. Royer, Mrs. Jeanne Hoag, Employee Development Officers

Building: New Post Office Building, Room 3140, 12th Street and Pennsylvania Avenue NW.

Telephone: WOrth 1-7237

Field Representative for the University: Alexander G. Rose

Telephone: 965-2350

Type of Course Offered: Undergraduate program leading to the degrees of Associate in Arts and Bachelor of Arts; graduate programs leading to the degrees of Master of Science in Financial Management, Master of Science in Governmental Administration, and Master of Science in Personnel Administration

Length of Courses: Fifteen weeks

Open to employees of the Post Office Department and to personnel of other government agencies by permission

VETERANS ADMINISTRATION, WASHINGTON, D. C. 20420

Training Officers: Kenneth Marcuson, Chief, Employee Relations and Training Division; Philip L. Loomis, After-hours Training Coordinator

Building: Veterans Administration, Main Building, Room 115, Vermont Avenue and H Street NW.

Telephone: DUDley 9-3101

Field Representative for the University: Alexander G. Rose

Telephone: 965-2350

Type of Course Offered: Undergraduate program leading to the degrees of Associate in Arts and Bachelor of Arts; graduate programs leading to the degrees of Master of Science in Financial Management, Master of Science in Governmental Administration, and Master of Science in Personnel Administration

Length of Courses: Fifteen weeks

Open to employees of the Veterans Administration and to personnel of other government agencies by permission

MELPAR, INCORPORATED

Falls Church, Virginia 22042

Personnel Representative: Miss Margaret R. Kiley

Building: Central Office Building, Personnel Office, 3000 Arlington Boulevard, Falls Church, Virginia

Telephone: JEFFerson 4-6000, Extension 2350

Field Representative for the University: Michael H. Jessup

Telephone: 965-2350

Type of Course Offered: Undergraduate and graduate courses in mathematics.

Length of Courses: Fifteen weeks

Open to Melpar employees only

EDUCATION COURSES FOR TEACHERS

Undergraduate and graduate courses for elementary and secondary school teachers have been given by the College of General Studies in coordination with the School of Education in the school systems in the areas listed below. Teachers interested in having a program in Education started in their communities should make their requests known through their Directors of Instruction to Gerrit TenBrink (Telephone: 965-2350), Field Representative for The George Washington University for Off-Campus courses in Education.

Alexandria Public Schools

John C. Albohm, Superintendent

418 South Washington Street

Alexandria, Virginia 22314

Telephone: KING 9-9100

Arlington County Public Schools

Joseph B. Johnson, Assistant Superintendent for Instruction

1426 N. Quincy Street

Arlington, Virginia 22201

Telephone: JACKson 2-7700

Berkeley County Public Schools

Jack K. Randolph, Superintendent of Schools

David E. Mudge, Assistant Superintendent

Berkeley County Public Schools

Martinsburg, West Virginia 25401

Telephone: MARTinsburg 89-8

Calvert County Public Schools

Maurice A. Dunkle, Superintendent of Schools

Prince Frederick, Maryland 20678

Telephone: Prince Frederick 76 and 86

Clarke County Public Schools

George W. Burton, Superintendent

Clarke County Public Schools

Berryville, Virginia 22611

Telephone: Berryville 38

Fairfax County Public Schools

W. Harold Ford, Assistant Superintendent for Instruction

Fairfax County School Board

Fairfax, Virginia 22150

Telephone: CRescent 3-6500

Frederick County Public Schools

Fred J. Brown, Jr., Assistant Superintendent for Instruction

115 East Church Street

Frederick, Maryland 21701

Telephone: 662-4191

Jefferson County Public Schools

T. A. Lowery, Superintendent

Miss Lucille Heflebower, Supervisor of Instruction

Jefferson County Public Schools

Charles Town, West Virginia 25414

Telephone: Charles Town 64

Loudoun County Public Schools

Caleb J. Gibson, Director of Instruction

Mrs. Ruth D. Schulke, Supervisor, Elementary Education

Loudoun County School Board

Leesburg, Virginia 22075

Telephone: SPring 7-2570

Montgomery County Public Schools

Richard Collier, Director of Staff Development

Lawrence G. Strickland, Teacher Specialist

Montgomery County School Board, Box 231

Rockville, Maryland 20850

Telephone: 762-5000, Extension 395

Prince Georges County Public Schools

Edward S. Beach, Jr., Director of Curriculum

Prince Georges County School Board

Upper Marlboro, Maryland 20870

Telephone: 627-2811

Prince William County Public Schools

Claude E. DeHaven, Assistant Superintendent for Instruction

Prince William County School Board

Manassas, Virginia 22110

Telephone: EMpire 8-2104

St. Mary's County Public Schools

Robert S. King, Jr., Superintendent of Schools

James Ogdon, Supervisor of Instruction

St. Mary's County School Board

Washington Street

Leonardtown, Maryland 20650

Telephone: Greenwood 59141

Worcester County Public Schools

Paul S. Hyde, Superintendent of Schools

Ernest C. Holland, Assistant Supervisor of Pupil Personnel

Worcester County School Board

Market Street

Snow Hill, Maryland 21863

Telephone: Snow Hill 582 and 583

Courses of Instruction

On the following pages of this CATALOGUE, under the alphabetically arranged names of the departments of instruction, are listed the courses of instruction offered by the College of General Studies required in degree programs. The courses as here listed are subject to some slight change. The University reserves the right to withdraw any course announced.

Courses of instruction are scheduled by Training Directors of the various groups, organizations, agencies, and installations interested in conducting an Off-Campus program of college courses. These classes are generally offered in the late afternoon or evening, are identical with the daytime and evening sections of corresponding courses on campus, are taught by many of the same instructors, and carry the same amount of credit. By taking the evening and summer classes and extending the time of study beyond the customary four years, a student who is able to give only part of his time to college work may complete a regular curriculum and obtain a degree.

EXPLANATION OF COURSE NUMBERS

Courses are assigned dual numbers. The first is a serial number assigned by the College of General Studies at the time of registration. The serial number does not appear in this catalogue and is used to distinguish one class from another when the same course is offered simultaneously at different places. The second number is the course number assigned by the department and indicates the academic level of each course.

The following system of numbering is used:

First-group courses.—Courses numbered from 1 to 100 are planned for students in the freshman and sophomore years. With the approval of the adviser and the dean, they may also be taken by juniors and seniors. In certain instances, they may be taken by graduate students to make up undergraduate deficiencies or as prerequisite to advanced courses, but they may not be credited toward a higher degree.

Second-group courses.—Courses numbered from 101 to 200 are planned for students in the junior and senior years. They may be credited toward higher degrees only when registration for graduate credit has been approved at the beginning of the course by the dean responsible for the graduate work and by the officer of instruction, and when the completion of additional work has been certified by the officer of instruction.

Third-group courses.—Courses numbered from 201 to 300 are planned primarily for graduate students. They are open, with the approval of the officer of instruction, to qualified seniors.

INDICATION OF THE AMOUNT OF CREDIT

The number of semester hours of credit given for the satisfactory completion of a course, is in most cases, indicated in parentheses after the name of the course. Thus, a year course giving 3 hours of credit each semester is marked (3-3), and a semester course giving 3 hours of credit is marked (3). A semester hour usually consists of the completion of one fifty-minute period of class work or of one laboratory period a week for one semester.

Accounting

See "Government and Business"

American Thought and Civilization

101 *American Civilization* (3)

Lecture (1¼ hours), discussion (1¼ hours). This is a University-sponsored course designed to offer all students, toward the end of their residence, a broad assessment of the culture in which they are to live and to work. Contemporary problems and characteristics of American society are presented against the background of the humanities and social sciences. Each lecture is delivered by an authority on a particular subject: political, social, and economic problems; international attitudes; important trends in literature, science, the arts, religion, and philosophy. Discussion sections will combine lecture materials with assigned readings in order to achieve an ordered sense of the over-all state of American civilization. Prerequisite: successful completion of 85 semester-hours credit. Open to graduate students, but available for graduate credit to students in the School of Education only. Recommended as an elective, but not to be taken as part of any major program without specific departmental approval. Available only on campus.

Botany

Chairman: Russell Bradford Stevens, Ph.D., Professor of Botany, Building C, Room 401 (2029 G Street NW.), Federal 8-0250, Extension 459

BIOLOGY

1-2 *Introductory Biology* (4-4)

This course is designed to provide the nonscience student with an understanding of the life sciences and to serve as a basis for those who may wish to continue in some aspect of biology. It is the introductory course leading to all second- and third-group courses in botany and zoology, and is taught jointly by the staff members of the two departments. Designed to be taken in either sequence; students may be registered for either 1 or 2. Material fee, \$10 a semester.

Business Administration

Business and Public Administration

See "Government and Business"

Chemistry

Chairman: Charles Rudolph Naeser, Ph.D., Professor of Chemistry, Samson Hall, Room 201 (2036 H Street NW.), Federal 8-0250, Extension 261

3-4 *Fundamentals of Physical Science* (4-4)

A year course: credit is not given for the first half until the second half is completed. Lecture (3 hours), laboratory (3 hours). Selected topics from chemistry, physics, astronomy, and geology are integrated to introduce the nonscience major to the basic methods and achievements of physical science. Laboratory fee, \$11 a semester.

11-12 *General Chemistry* (4-4)

A year course: credit is not given for the first half until the second half is completed. Lecture (12 hours), laboratory (14 hours), recitation (1 hour). An elementary course in general chemistry. Prerequisite: one year of high school algebra. Laboratory fee, \$18 a semester.

21 *Qualitative Inorganic Analysis* (4)

Lecture (12 hours), laboratory (6 hours). Theoretical and practical study of methods of separating and identifying the more common cations and anions using semi-micro techniques. Prerequisite: Chemistry 12 or 15, or a placement examination which may be waived at the discretion of the instructor. Laboratory fee, \$18.

111 *Physical Chemistry* (3)

Gas laws, chemical thermodynamics, solution chemistry, chemical equilibria, and

other topics are introduced. Prerequisite: Chemistry 22; Mathematics 22; Physics 1-2 or former 13, 14, or 15.

112 *Physical Chemistry* (3)

Chemical kinetics, chemical statistics, electrochemistry, and other topics are introduced. Prerequisite: Chemistry 111.

113 *Physical Chemistry Laboratory* (2)

The laboratory complement of Chemistry 111; previous satisfactory completion of or concurrent registration for Chemistry 111 is required. Laboratory fee, \$18.

Economics

Chairman: John William Skinner, Ph.D., Professor of Economics, Monroe Hall, Room 401 (2115 G Street NW.), Federal 8-9250, Extension 135

1-2 *Principles of Economics** (3-3)

Lecture (2 hours), recitation (1 hour). Survey of the major economic principles, institutions, and problems in contemporary life. Economics 1 is prerequisite to Economics 2.

121 *Money and Banking* (3)

Theory of money, credit, and banking; commercial banking and the Federal Reserve System; other financial institutions; international aspects of money; current financial problems.

133 *The Economy of the Soviet Union* (3)

Development and main features of the economic life of the Soviet Union.

141 *Unionism and Collective Bargaining* (3)

The development and characteristics of American unionism and collective bargaining as economic and social institutions, appraisal of economic and social aspects, public policies and controls.

142 *Labor Economics* (3)

Characteristics of the American labor force, operations of labor markets, wage theories and practices, impact of collective bargaining, causes and characteristics of unemployment, public policies and programs.

165 *Government Control of Economic Activity* (3)

Changing role of government in promoting and regulating economic activity, types and spheres of control.

181-82 *International Economics* (3-3)

First half: survey of the theory of international trade, factor movements, and balance of payments adjustment. *Second half:* analysis of modern international economic problems including problems of less developed countries.

217-18 *Survey of Economics* (2 or 3-3)

Survey of economic analysis and policy. Not open to graduate students in economics or economic policy.

219 *Managerial Economics* (3)

Analysis of price, production, and inventory policies of business firms.

* Economics 1-2 is prerequisite to all other courses in Economics.

241 *Unionism, Collective Bargaining, and Labor Economics* (3)

An accelerated introductory course in labor economics primarily for graduate students in Personnel Administration.

244 *Problems in Unionism, Collective Bargaining, and Labor Economics* (3)

Concentrated study of selected economic, social, and legal aspects of labor relations and labor economics.

246 *Foreign Labor Movements* (3)

Labor in the economic, social, and political structures of selected foreign countries. Contrasts and comparisons with the United States.

251-52 *Economic Development* (3-3)

The theories and problems of economic growth with special attention to the under developed countries.

267 *The Soviet Economy* (3)

Development of the Soviet-type economy; organization, policies, and problems; monetary, fiscal, production, allocative, foreign trade, economic growth.

Education

Chairman: Blake Smith Root, Ed.D., Professor of Education, Building D, Room 300 (2013 G Street NW.), FEederal 8-0250, Extension 672

108 *Human Development, Learning, and Teaching* (3)

Lecture (2 hours), conference (1 hour), field work (2 hours)—as arranged. For the general student as well as the prospective teacher. Principles of effective teaching based on an understanding of human development and the nature of learning. Prerequisite: Psychology 22 or 121.

112 *Educational Measurement* (3)

Scope, needs, services to students, selection and construction of teacher-made tests, interpretation of tests for evidence purposes. Prerequisite: Education 108 and 123.

113 *Elementary School Art* (3)

Lecture and laboratory (3 hours), field work—as arranged. For undergraduates in the elementary school curriculum. Materials and methods. Prerequisite: Psychology 1 and 22, or 121. Material fee, \$4.50.

114 *Elementary School Music* (3)

Lecture (2 hours), field work (2 hours)—as arranged. For undergraduates in the elementary school curriculum. Materials and methods. Prerequisite: Psychology 1 and 22, or 121.

115 *Teaching of Reading in the Elementary School* (3)

Lecture (2 hours), field work (2 hours)—as arranged. A basic course in methods, techniques, materials, and activities essential to a good elementary school reading program. Prerequisite: Education 108 and 123 or teaching experience.

116 *Elementary School Social Studies* (3)

Lecture (2 hours), field work (2 hours)—as arranged. For teachers. Content, methods, materials, and activities essential in the elementary school curriculum. Prerequisite: Education 108 and 123 or teaching experience.

117 Elementary School Science (3)

Lecture (2 hours), field work (2 hours)—as arranged. For teachers. Content, methods, materials, and activities essential in the elementary school curriculum. Prerequisite: Education 108 and 123 or teaching experience.

118 Teaching Science in the Elementary School (3)

Designed to meet the needs of elementary teachers who wish to improve their science background and become more skillful in the method of teaching; content based on needs of group; nontechnical with respect to science content, practical in method aspect; simple experiments, observations, use of printed materials, field trips, observation of teaching; a how-to-do course for teachers who have little science knowledge and feel insecure in their science teaching. Prerequisite: Education 108 and 123 or teaching experience.

120 Elementary School Arithmetic (3)

Lecture (2 hours), field work (2 hours)—as arranged. For teachers. Content, methods, materials, and activities essential in the elementary school curriculum. Prerequisite: Education 108 and 123 or teaching experience.

123 Society and the School (3)

Lecture (2 hours), conference (1 hour), field work (2 hours)—as arranged. For the general student as well as the prospective teacher. Historical and sociological development of education at local, national, and international levels; cooperation of the school with other community agencies; organization and operation of schools; functions of school personnel.

128 Children's Literature (3)

Lecture (2 hours), field work (2 hours)—as arranged. For teachers. Exploring and evaluating the newer books for children and the children's classics, understanding the contribution of literature in child development, appreciating children's original expressions. Prerequisite: Psychology 1 and 22.

138 Teaching Social Studies in Secondary Schools (2 to 4)

Lecture (2 hours), field work (2 hours)—as arranged. Prerequisite*: twenty-four semester hours of social studies.

141 Teaching Latin* (3)

Consideration of objectives in teaching Latin; construction of courses of study; techniques of motivation, presentation, and drill; areas of enrichment. Designed for both junior and senior high school teaching.

146 Teaching Foreign Languages (2 to 4)

Prerequisite*: eighteen semester hours of one foreign language.

147 Foreign Language Instruction in the Elementary School (2)

Methods, materials, and activities essential in teaching foreign languages in the elementary school.

161 Management of the Hospital Nursing Unit (3)

Analysis of nursing today, the hospital, structure and changing functions, basic concepts of management, personnel practices and activities, interpersonal relationships, legal aspects and safety factors, economics—inventories, and evaluation procedures of the hospital nursing unit.

180 Introduction to the Education of Exceptional Children (3)

A survey course to acquaint prospective teachers of the retarded with the various types and degrees of mental, physical, social, and emotional deviations seen in the school population and to help them to accommodate such children in a school program. Prerequisite: Education 108 and 123 or the equivalent and permission of the adviser.

* This is a special methods course. Prerequisite to all special methods courses: Education 108, 123, and 131, or adequate experience. Additional prerequisites are stated under each course.

181 *Nature and Needs of Exceptional Children I—the Mentally Retarded* (3)

Nature and needs of children with varying degrees of retardation. Causation and diagnosis of retardation and its psychological and sociological implications. Principles of learning with respect to teaching retarded children. Deviations of behavior in the mentally retarded. Prerequisite: Education 108 and 123 or the equivalent and permission of the adviser.

185 *Teaching Younger Mentally Retarded Children (Nursery and Elementary School Age)* (3)

Educational methods and curriculum for the mentally retarded at different levels of maturity within the scope of the course. Organization and planning of instructional activities; selection and preparation of materials and equipment; community resources; records and reports; health and welfare services. Prerequisite: Education 180 and 181 or the equivalent and permission of the adviser.

186 *Teaching Older Mentally Retarded Children (Junior and Senior High School Age)* (3)

Methods and curriculum for the mentally retarded at different levels of maturity within the scope of the course. Organization and planning of instructional activities; selection and preparation of materials and equipment; community resources; records and reports; health and welfare services; occupational training; employment opportunities; job analyses; citizenship education. Prerequisite: Education 180 and 181 or the equivalent and permission of the adviser.

189 *Practicum in Teaching the Mentally Retarded* (6 to 9)

Supervised student teaching in classrooms for the mentally retarded under the direction of a qualified teacher and the supervision of the University staff. A minimum of 150 clock hours is required for 6 semester hours of credit; 225, for 9 hours. Prerequisite: Education 180 and 181.

205-6 *The Curriculum* (3-3)

For experienced teachers. *First half:* curriculum foundations and issues; comparison of curriculum patterns. *Second half:* principles and procedures in curriculum development; group consideration of student problems.

207 *Curriculum Materials* (3)

For experienced teachers. Construction of courses of study, resource units, classroom teaching aids, and inexpensive materials; direct application to students' own situations.

208 *Human Development, Learning, and Teaching* (3)

Lecture (2 hours), conference (1 hour), field work (2 hours). For graduate students. Principles of effective teaching based on an understanding of human growth and development and the nature of learning. Prerequisite: Psychology 1 and 22, or 121.

209 *Child Growth and Development* (3)

An interdisciplinary approach to child development taking into account such factors as society and culture, socialization, and socializing agents with particular emphasis on the home and school.

210 *Adolescent Growth and Development* (3)

A consideration of physical, intellectual, and cultural backgrounds of adolescence with particular emphasis on social development, adjustment to organized society, educational development and adjustment to school, and home relationships.

211 *Evaluation in Education* (3)

Concept of evaluation, relationship between evaluation of ends and means, steps involved in the evaluation of learning outcomes. As the course progresses each student develops solutions for evaluation problems related to his work situation.

212 *Educational Measurement* (3)

Basic measurement technique; construction, selection, administration, and interpretation.

tation of objective and essay-type examinations; statistical analysis of test results; laboratory experiences in the use of test instruments.

213-14 *History of Education* (3-3)

First half: the European backgrounds of American education. *Second half:* the evolution of the American school system.

215 *Education of Exceptional Children* (3)

For classroom teachers. A survey of current problems in the education and guidance of exceptional pupils. Nature and needs of those physically, mentally, or emotionally handicapped; needs of the gifted. Resources for help in correction, diagnosis, therapy, education, and guidance.

216 *Education of Slow-learning Children* (3)

Identification, nature, and needs of slow-learning elementary and junior high school children. Emphasis on diagnosis and treatment of learning difficulties.

217-18 *Philosophy of Education* (3-3)

First half: designed to help students formulate a personal philosophy of education. *Second half:* social foundations of education—a study of the forces that shape the policies and offerings of the school.

221 *Early Childhood Education* (3)

For experienced teachers. Emphasis on methods, materials, and learning experiences designed to meet the developmental needs of kindergarten and primary-grade children.

223-24 *Reading Problems* (3-3)

For experienced teachers. Study of reading difficulties on elementary and secondary school levels; classroom and clinical procedures in solving reading problems.

227 *Basic Issues in Elementary Education* (3)

A consideration of basic issues in the purposes, organization, and conduct of elementary education. Emphasis on the philosophical and psychological roots of fundamental assumptions as they relate to classroom practices.

228 *Instructional Areas in Elementary Education* (3)

Critical appraisal of the objectives, organization, content, and teaching methods in the language arts, arithmetic, social studies, science, arts and crafts, health and physical education.

229 *Administration of Elementary Education* (3)

For experienced teachers and administrators. Administration as a means of achieving instructional objectives, organizing learning and teaching activities, handling supplies and equipment, maintaining the building, and integrating school and community life. Emphasis upon guide lines to action.

231 *Secondary School Classroom Procedures** (3)

Survey of current classroom practices with particular attention to selected topics such as teacher-pupil planning, group procedures, pupil security, initiatory and culminating activities, individual and group evaluation techniques, teaching aids, etc.; review of recent literature.

233 *Audio-visual Education** (3)

Lecture (2 hours), laboratory (1 hour). Role of audio-visual materials in learning; selection, evaluation, and use of materials; administrative problems in the care, operation, maintenance, and use of audio-visual materials and equipment. Material fee, \$7.

241 *Education of the Gifted** (3)

For classroom teachers. Nature and discovery of giftedness; provisions for the gifted in regular classes; experimental projects.

243 *Human Relations in the Classroom** (3)

Principles and practices involved in interpersonal relationships between learner and teacher and among learners.

* Prerequisite: adequate professional preparation.

245 School and Community* (3)

The school as an important member of a team of social agencies that builds the community.

251 Guidance in Elementary and Secondary Schools* (3)

A survey course: scope; needs; organization of the program; services to students, the instructional staff, and the administration; personnel needed for the program.

252 Organization and Administration of Guidance Services (3)

Designed for guidance directors and supervisors and experienced school counselors who hope to qualify for such positions in the near future. Prerequisite: a minimum of 15 semester hours of approved graduate work in Measurement and Guidance.

253 Analysis of the Individual for Purposes of Counseling (3)

A detailed study of individual analysis techniques with practice in handling such methods. Prerequisite: Education 112 or the equivalent.

254 The Junior High School* (3)

Purposes, organization, core programs, guidance, developing course of study, extra classroom activities.

257 Occupational and Educational Information (3)

Designed to acquaint vocational and educational counselors with the basic occupational and educational information necessary in counseling. Sources of data and techniques of collecting, analyzing, and disseminating for purposes of guidance.

258 Techniques of Counseling (3)

An intensive study of the educational and psychological processes involved in counseling interviews. Specific types of vocational, educational, and personal counseling problems will be discussed. Prerequisite: 12 semester hours in testing and guidance, including Education 253 and 257. In exceptional cases Education 253 or 257 may be taken concurrently with 258.

263-64 Employee Training (3-3)

First half: nature and purpose, review of major programs—orientation, supervisory, apprentice, clerical skills, communication. *Second half:* administrative problems and practices, training media, coordination with other management functions. Prerequisite: adequate professional preparation or two years of experience in employee training.

265-66 Teaching Secondary School English—Materials, Resources, Content (3-3)

A refresher course for teachers of English. Discussion of new approaches to high school content. Offered in cooperation with the departments of English and Speech. *First half:* communication skills—structural linguistics, composition, and speech. *Second half:* American and English literature.

271 The Teacher and School Administration* (3)

A survey course for teachers and prospective administrators. Education and world affairs, national agencies, role of the state, local administration, school finance, legal controls, school plant, public support, democratic administrative procedures, improving teaching conditions.

272 The Teacher and School Supervision* (3)

Nature, organization, human relationships, and techniques.

275 School Finance* (3)

Educational financial theory, practice, and control, including methods of financing.

276 Seminar: Public Relations in School Administration* (3)

Purposes, gathering materials, disseminating agencies, publicity media, public participation in policy making.

* Prerequisite: adequate professional preparation

278 School Law* (3)

Sources and scope of school law; legal rights and responsibilities of teachers, pupils, and taxpayers. Other legal problems of major interest to the group.

285 Extra-classroom Activities* (3)

Nature and purposes of selected activities—homeroom, clubs, assemblies, school publications, student council, interscholastic contest; particular attention to sponsorship, participation, finance, and evaluation.

COURSES OFFERED IN AFFILIATION WITH THE WASHINGTON SCHOOL OF PSYCHIATRY

The following Education courses, offered by the Washington School of Psychiatry in affiliation with The George Washington University, are available to graduate students in the School of Education and to qualified students in the Division of University Students and the College of General Studies. The Staff of the Washington School of Psychiatry will conduct these courses at the School of Psychiatry, 1610 New Hampshire Avenue NW., Washington, D. C.

234 Communications Skills for Teachers and Principals (3)

The life-space interview in the school setting between the teacher and the child or the principal and the child; the planned interview between the teacher and the parent or the principal and the parent.

235 Role of the Teacher in the Changing Community (3)

Racial, ethnic, and social class population shifts and accompanying problems of housing, health, and public safety, with emphasis on the human relations and mental health aspects of the current situation; supports, techniques, and resources available to educators.

236 Emotional Factors in Learning (3)

For counselors and guidance staff, principals, special education teachers, pupil personnel workers. Problems of guidance derived from divergent or pathological motivational patterns in the child or family. Class limited to 25 students.

237 Emotional Problems Confronting the Teacher (3)

The teacher's relationship with other teachers, the administration, the school system, and pupils; techniques of interviewing and dealing with parents, members of the school staff, and the community.

238 Seminar on Learning Problems and Disabilities (3)

Emotional learning blocks, socio-economic disadvantages, brain damage and hyperactivity, psychosomatic symptoms and health questions affecting learning, curriculum planning and its relation to mental health and learning growth, communication and motivation.

239 Educational Problems of the Urban Child (2)

Mental health problems affecting the urban child's vocational, educational, and emotional needs; teacher-child relationship, language differences in various socio-economic environments. Curriculum planning.

240 Techniques of Interviewing for Teachers and School Staff (3)

An intensive study of specific interview techniques and requisite skills. Specific problems encountered by teachers and staff will be discussed.

* Prerequisite: adequate professional preparation.

Engineering and Applied Science

For information consult Martin Alexander Mason, Ing.-Dr., Professor of Engineering and Applied Science, Tompkins Hall, Room 103 (725 Twenty-third Street NW.), FEderal 8 0250, Extension 246

APPLIED SCIENCE

3 *Graphical Communication* (3)

Principles and methods of graphical communication, sketching, schematic diagrams, nomographs, charts and graphs, elements of descriptive geometry, spatial representation.

English*

Chairman: John Palmer Reesing, Jr., Ph.D., Professor of English Literature, Building D, Room 403 (2013 G Street NW.), FEderal 8 0250, Extension 276

ENGLISH COMPOSITION

Basic English (0)

Instruction, drill, and exercises in grammar, vocabulary, spelling, and mechanics in general; instruction and exercises in composition and reading. This course is designed to prepare students for English 1. No academic credit. Tuition fee, \$54

1 *English Composition** (3)

Review of grammar, exercises in composition, readings

IX *English Composition** (3)

An intensive course in English grammar and composition to which are assigned students whose placement tests show them inadequately prepared for the regular work of English 1. The course begins with detailed instruction, drill, and exercises in the basic structure of the English language and in the writing of paragraphs; it continues with the content of English 1. English IX meets five hours a week and carries 3 semester hours of credit. The total fee is \$145 (the tuition fee is \$120 plus an additional fee of \$25.)

2 *English Composition* (3)

Readings and practice in expository and argumentative techniques and in research procedure. Prerequisite: English 1 or IX.

* Before students are registered in English 1, they are tested in the minimum essentials of vocabulary, grammar, standard usage, and writing skill. Those students who show marked superiority may, after further tests, be exempted from one or both halves of the English Composition course. Those who are inadequately prepared for English 1 will be assigned to *Basic English*. In lieu of *Basic English*, campus students may, if they desire, be given permission to register for English IX on campus. English 1 or IX is prerequisite to all other courses in English.

11 *The Writing of Reports* (3)

Theory and practice in the writing of technical reports. Prerequisite: English 1 or 1X and 2.

WORLD LITERATURE**41-42 *Introduction to World Literature* (3-3)**

First half: a survey of Western literary heritage from Homer to Milton. *Second half:* a review of Western literature from the English metaphysical poets to Franklin Delano Roosevelt.

ENGLISH LITERATURE**51-52 *Introduction to English Literature* (3-3)**

A historical survey. Prerequisite: English 1 or 1X.

91-92 *Introduction to European Literature* (3-3)

Consideration of various types. Prerequisite: English 1 or 1X

135-36 *Shakespeare* (3-3)**AMERICAN LITERATURE****71-72 *Introduction to American Literature* (3-3)**

A historical survey. *First half:* from the beginnings to the Civil War. *Second half:* from the Civil War to the present. Prerequisite: English 1 or 1X.

143 *The Development Narrative in Literature* (3)

A study of those works in world literature dealing with the development of the child.

144 *American Literature Since 1920* (3)

Poetry, drama, and the novel. Readings and discussion.

French

See "Romance Languages and Literatures"

Geography and Regional Science

Acting Chairman: John Tait Davis, Ph.D., Associate Professor of Geography, Building I, Room 203 (2135 G Street NW.), FEderal 8-0250, Extension 287 and 298

51 *Introduction to Geography* (3)

A study of place attributes and characteristics, patterns and associations of physical and cultural earth features.

52 *World Regions* (3)

The analysis of world regional divisions, description and interpretation of region complexes, evaluation of regional differences as they affect the distribution and activities of man.

113 *Geomorphology (3)**

Nature and evolution of earth forms, with special emphasis upon relief features of North America. Prerequisite: Geography 51.

114 *Weather and Climate (3)**

Rudimentary atmospheric physics, air mass and frontal weather analysis, regional climatology. Prerequisite: Geography 51.

115-16 *Physical Geography* (3-3)

Introduction to the earth sciences: form of the earth, grids and time, weather and climate, geomorphic processes and land-forms, soils, vegetation, weather forecasting, map reading.

124 *Land Capabilities* (3)

Evaluation of land capabilities based on analysis of locational, physical, economic and social land characteristics. Principles of site analysis and best use. Systems of measurement of area potential.

125 *Transportation Complexes* (3)

A study of transportation networks and systems by which people, things, and ideas are given varying degrees of place utility. An analysis of the role of transportation in urban, national, and international relationships.

126 *World Economies* (3)

Description and comparison of differing regional economies—pastoral, agricultural, industrial; patterns of world distribution.

146 *World Political Geography* (3)

Types and distributions of political systems, the major political units and associations of the world, factors which affect relative political power, areas of conflict and arbitration.

164 *Communist China*† (3)

165 *Eastern and Southeastern Asia*† (3)

166 *The Soviet Union*† (3)

* This course is offered off campus only.

† Regional survey.

CARTOGRAPHY

- 1 *Map Interpretation* (3)
Characteristics and uses of different kinds of maps and charts: geographic and grid coordinates, attributes of projections, symbolization.
- 11 *Cartographic Drafting and Descriptive Geometry* (3)
Special visualization, engineering drawing, schematic diagrams, and descriptive geometry; use of drafting and scribing instruments and materials; exercises in cartographic design and symbolization in the drafting of topographic and special-purpose maps.
- 12 *Topographic Surveying* (3)
Principles, methods, and instruments used in making space measurements, including layouts, elements of simple curves, coordinate system; and treatment of observational errors. Prerequisite: Mathematics 12; Cartography 11. Surveying fee, \$13.
- 13 *Higher Surveying* (3)
Elements of geodesy, triangulation, topography, hydrography, and precise trigonometric leveling. Prerequisite: Cartography 12. Surveying fee, \$13.
- 17-18 *Elementary Photogrammetry* (3-3)
Principles, methods, and instruments used in photographic surveying and production of maps, photographic interpretation, principles of stereoscopy. Prerequisite: Cartography 13.
- 110 *Map Projections* (2)
Characteristics, mathematical development, and practical construction of major map projections and grid systems. Prerequisite: Mathematics 22; Cartography 13.
- 111 *Map Reproduction* (1)
Theory of photographic process, photographic optics, emulsions, developers, lenses, offset lithographic process, line and half-tone reproduction, single and multi-color photolithographic reproduction. Prerequisite: Chemistry 11-12.
- 155 *Elementary Geodesy* (3)
Development of principles and formulas basic to theoretical and applied geodesy, with application to representative problems. Prerequisite: Mathematics 24.
- 156 *Geodetic Astronomy* (3)
Development and application of principles and formulas for the astronomic determination of latitude, longitude, and azimuth. Prerequisite: Cartography 155.
- 160 *Theory of Errors and Geodetic Adjustments* (3)
Separation of random and systematic errors, distribution of errors, Gaussian and Poisson distribution, fundamentals of matrix algebra with special emphasis on least squares adjustment of geodetic networks. Prerequisite: Cartography 155.
- 191-92 *Map and Chart Construction* (3-3)
Theory and practice in the various phases of map and chart construction; practice in the preparation of original maps and charts for reproduction. Prerequisite: Cartography 156.

OCEANOGRAPHY

- 101-2 *Introductory Oceanography* (3-3)
An introduction to oceanography: general characteristics of ocean basins, properties of sea water, thermal structure, waves, currents, submarine geology, tides, plant and fish ecology, new developments in oceanography based on a review of the current literature. Prerequisites: Chemistry 11-12; and Physics 1-2.

Geology

Chairman: Geza Tyleki, Ph.D., Professor of Geology, Building C, Room 3 (2029 G Street NW.), FEderal 8-0250, Extension 763

- 1-2 *Introductory Geology* (3-3)
Lecture (2 hours), laboratory and field trip (2 hours). A survey course covering the principles of geology. Laboratory fee, \$6 a semester.
- 3 *Introductory Geology* (3)
A survey course covering the principles of geology. (A nonlaboratory course for Off-Campus students only.)
- 4 *Introductory Geology* (3)
Geological periods, evolution of life on earth. (A nonlaboratory course for Off-Campus students only.)
- 12 *Rocks, Fossils, and Minerals* (3)
Lecture (2 hours), laboratory (3 hours). Introduction to rocks, fossils, minerals, ores, gems, and other mineral deposits. Prerequisite: Geology 1 and high school chemistry, or permission of the instructor. Laboratory fee, \$8.
- 103-4 *Geology for Engineers* (3-3)
Prerequisite: 6 hours of Mathematics or Survey of Science or permission of instructor
- 105-6 *Fundamentals of Geophysics* (3-3)
Survey of the theories and methods of investigation used in determining the constitution and dynamics of the earth, its oceans, and atmosphere. (It is recommended that students take Geology 3, 4: *Introductory Geology*, or the equivalent.) Prerequisite: Geography 113.

Germanic Languages and Literatures

Chairman: Wolfram Karl Legner, Ph.D., Professor of German, Monroe Hall, Room 405 (2115 G Street NW.), FEderal 8-0250, Extension 252

- 1-2 *First-year German* (3-3)
A year course; credit is not given for the first half until the second half is completed. The essentials of German grammar; translation of easy prose.
- 3-4 *Second-year German* (3-3)
A year course; credit is not given for the first half until the second half is completed. Selections from modern German prose; continuation and review of grammar. Prerequisite: German 1-2 or two years of high school German.
- 9-10 *German Conversation and Composition* (3-3)
Aural training and oral practice.
- 51-52 *Introduction to German Literature* (3-3)
Prerequisite: German 4 or the equivalent.

Government and Business

Chairman: James Carlton Dockeray, Ph.D., Professor of Finance, Hall of Government, Room 201 (710 Twenty-first Street NW.), FEderal 8-0250. Extensions 512, 539

ACCOUNTING

Program Coordinator: John Coughlan, B. Comm., Ph.D., Associate Professor of Accounting, Hall of Government, Room 100 (710 Twenty-first Street NW.), FEderal 8-0250, Extensions 243, 610

1-2 *Introductory Accounting* (3-3)

First half: basic principles underlying accounting records, preparation of the work sheet and financial statements, accounting for single proprietorships and partnerships. *Second half:* accounting for corporations and introduction to cost accounting, analysis of financial statements, and valuation and amortization problems. Prerequisite to Accounting 2: Accounting 1 or permission of the instructor.

3 *General Accounting* (3)

Study of accounting systems and accounting for single proprietorships and corporations, with emphasis on accounting theory, terminology, and the analysis and interpretation of accounting data.

101 *Cost Accounting* (3)

Theory and purposes of industrial cost accounting; treatment of systems of cost control and determination; analysis and interpretation of cost data. Prerequisite: Accounting 1-2.

111 *Financial Statement Analysis* (3)

Methods and techniques of preparing, analyzing, and interpreting financial statements for the guidance of operating executives, directors, stockholders, and creditors; influence of price level changes on accounting data; determination and interpretation of trends and ratios. Prerequisite: Accounting 1-2 or permission of the instructor.

115 *Survey of Accounting* (3)

Accounting for single proprietorships and corporations with emphasis on the use of accounting information in the management process; study of theory, terminology, and the analysis and interpretation of accounting data. Not open for credit to Accounting or Business Administration majors.

121-22 *Intermediate Accounting* (3-3)

First half: valuation and amortization problems of current assets, long term investments, tangible fixed assets, intangible assets, and deferred charges; accounting for current, noncurrent, contingent, and estimated liabilities. Prerequisite to 121: Accounting 2 or permission of the instructor. *Second half:* accounting for the organization, financing, operation, and dissolution of corporations and partnerships; basic principles of consignment and installment sales. Prerequisite to 122: Accounting 121 or permission of the instructor.

144 *Federal Accounting* (3)

Accounting procedures in the Federal Government, with emphasis on agency level accounts, implementation of accrued expenditure legislation, and accounting support for cost based budgets. Accounts of the United States Treasury; current concepts of allotment, obligation, and disbursement accounting and reporting. Prerequisite: Accounting 141 or permission of the instructor.

161 Income Tax Accounting (3)

Problems involved in the federal income taxation of individuals and corporations, differences between tax accounting and financial accounting, social security taxes. Prerequisite: Accounting 1-2.

171 Auditing (3)

Duties and responsibilities of auditors: principles and procedures of making audits, techniques of verifying each financial statement item, preparation of audit working papers and reports. Prerequisite: Accounting 121-22.

181 Accounting Systems (3)

Theory and procedure of designing and installing accounting systems for collecting, recording, analyzing, and presenting accounting data. Prerequisite: Accounting 101, 121-22, and 171, or permission of the instructor.

191 Advanced Accounting (3)

Consolidated statements, statement of affairs, realization and liquidation reports, and estate and trust accounting. Prerequisite: Accounting 121-22.

193 Business Budgeting (3)

Principles, techniques, and procedures involved in the development, installation, and operation of a system of budgetary control to aid in the management of commercial and industrial organizations. Prerequisite: Accounting 1-2.

211-12 Managerial Accounting (3-3)

First half: analysis of the accounting system with special reference to the use of financial and operating records and accounting reports as tools of management; a study of valuation and amortization problems including the influence of price level changes on accounting data. Prerequisite: Accounting 1-2 or 3. *Second half:* a survey of internal accounting controls, commercial budgets, and cost accounting systems used by management in directing and controlling a business. Prerequisite to Accounting 212: Accounting 211 or permission of the instructor.

215 Survey of Managerial Accounting (2 or 3)

Nature, preparation, analysis, and interpretation of accounting reports; study of cost accounting, business budgeting, and internal accounting controls with emphasis on their use in the management process. Prerequisite: Accounting 1-2, 3, or 115, or permission of the instructor.

293 Budget Preparation and Administration (3)

Principles of and research on the formulation, adoption, and execution of a system of budgetary control to aid in the management of commercial or industrial business.

BUSINESS AND PUBLIC ADMINISTRATION**201 Advanced Administrative Management (2 or 3)**

An advanced course in administration emphasizing principles and practices common to administrative units of all kinds.

204 Quantitative Factors in Administration (3)

Developments in quantitative methods of administration.

205 Seminar: Communication and Executive Action (3)

Seminar in the communications processes. Research and analysis, identification of factors relating to receptivity; the dynamics of communication.

206 Personnel Management (3)

Basic principles; structure and organization of personnel offices; responsibilities; interagency relationships; personnel staffing, training, and work measurement.

207-8 Human Factors in Administration (2 or 3-3)

Individual, group, intergroup, and other human behavior and development; application of social science research to administration. Practical applications will be emphasized.

262 Contemporary Administrative Theory and Practice (3)

Current theories and trends in management with particular attention to the behavioral sciences communications and applicability of research.

268 Management Engineering (3)

Analysis of the techniques for initiation and implementation of management engineering programs, with emphasis on organization and methods surveys including the study of work measurements, work simplification management audits, and other management improvement programs.

280-81-82 Managerial Aspects of National Security* (3 or 4-3 or 4-3)

The application of business management principles to the military aspects of national security; organization and administration of the Federal Government for national defense; management of national resources (natural, human, energy, economic); budgeting and controllership; determination of requirements; procurement; production; supply management; and communications.

287 Relation of Government to Business (3)

Activities of government in their relation to business management in such areas as labor relations, wages, production, and prices. Trend and change in economic activity and its bearing upon government policy.

295 Research Methods (3)

Research techniques, sources of information, array and analysis of data, interpretation and presentation of the findings.

BUSINESS ADMINISTRATION**101 Introduction to Business (3)**

The business environment; its effects upon the decision making process.

102 Fundamentals of Management (3)

Planning, organizing, directing, coordinating, and controlling the activities of the administrative unit; evolution of management thinking.

103 Institutional Management (3)

Philosophy of hospital administration: special services, food service, maintenance, internal review.

105 Personnel Management (3)

Industrial personnel and manpower programs, organizations and policy in personnel activities.

106 Problems in Personnel Management (3)

Principles of manpower management illustrated by cases drawn from business, industry, and government. Prerequisite: Business Administration 105.

107 Labor Management Contracts (3)

Management's role in the negotiation and administration of collective bargaining agreements, as essential to development of good labor management relations.

109 Office Management (3)

Organization and layout of an office, use of office machines and appliances, planning and execution of work, supervision problems.

* Available only to students in the Master of Science in Business Administration program at the Industrial College of the Armed Forces and the Air University.

111-12 Personnel Records Administration (3-3)

First half: basic principles, techniques, and methods used in collecting, processing, evaluating, and storing personnel records of all kinds. *Second half:* problems and cases in special kinds of records keeping and records administration.

113 Real Estate (3)

Fundamentals of real estate practice; leasing and property management; valuation, financing, and taxation.

121 Risk Management (3)

A general course in underlying principles of property, life, marine, and casualty insurance, and the function of insurance in the economic life of a business or individual.

122 Life Insurance and Estate Planning (3)

Life insurance contracts, their use in providing protection and estate development.

131 Business Finance (3)

Basic principles involved in the financing of business enterprises. Prerequisite: Accounting 1-2.

138 Investments (3)

Analysis of factors of investment credit with application to different types of investments, proper selection of investments for various classes of investors, regulation. Prerequisite: Accounting 1-2, Business Administration 131.

141 Basic Marketing Management (3)

An introduction to marketing and marketing management in relation to our total economy and business management, consumer and demand analysis, retailing, wholesaling, major marketing management problems and policies with particular emphasis on major decision areas and tools. Prerequisite: Economics 1-2.

150 Procurement and Materials Management (3)

Purchasing organization, procedures, and policies; market relationships; selection of merchandise and sources of supply; procurement information and records; evaluation of procurement practices in industry and government.

161 Commercial Law: Contracts, Sales, Agency, and Bailments (3)**162 Commercial Law: Negotiable Instruments, Property, Mortgages (3)****163 Law in Relation to the Form of Business Units:
Corporations, Partnerships, and Trusts (3)****171 Principles of Transportation (3)**

Impact of transport on society; development, economic characteristics, services, rates, and regulation of the various modes of domestic intercity transportation.

193 Management Communication (3)

A survey course in the problems of communication; written communication: style and format; oral communication: oral briefing and presentation; group leadership; rapid reading; completed staff work; and related subjects.

198 Case Problems in Management (3)

Principles and techniques of management illustrated by cases drawn from business and industry. Prerequisite: Business Administration 102, 105, 131, 141.

199-200 Research (3-3)**209 Seminar: Personnel Management (3)**

Discussion of industrial personnel and manpower management, and research in advanced problems.

210 The Personnel Manager (3)

The job of the personnel manager and his place in the organization; relations of the personnel manager to other executives; the personnel manager's policy role, and his relations with the chief executive. Key problems of the senior personnel executive.

- 218 Survey of Data Processing (3)**
A survey of modern data processing systems with emphasis on the management problems associated with the installation and use of such systems.
- 219 Digital Computer Programming Concepts (3)**
Machine functions and programmed control, instructions and programs, sub-routines, general purpose programming, business oriented programming language. Prerequisite: Business and Public Administration 204 or permission of instructor.
- 220 Comparative Digital Computer Systems (3)**
Properties and capacities of the range of equipments in use today, special purpose business equipments, recent and prospective equipment developments. Prerequisite: Business Administration 219.
- 221 Application of Digital Computers (3)**
The integration of data processing in the regular operations of the business or government organization and in establishing flows of management information, systems planning, the impact of Automatic Data Processing on management organization and decision making. Prerequisite: Business and Public Administration 204 and Business Administration 220.
- 227 Linear Programming (3)**
Introduction to the vocabulary and methodology of management science through the study of linear programming techniques. Case studies.
- 228 Introduction to Operations Research for Management (3)**
Operations research as an approach to the solution of management problems. Emphasis is on the relevance and limitations of operations research. Practical applications are examined.
- 235 Financial Management (2 or 3)**
- 237 Investment Analysis (3)**
An advanced course in the applications of investment principles and analytical techniques to the selection of investments. Prerequisite: Business Administration 138.
- 241 Advanced Marketing Management (3)**
Marketing management problems and policies in major decision areas of product planning, channels of distribution, advertising, personal selling, sales promotion, pricing, and development of integrated marketing programs. Marketing research and other tools useful in decision making. Case analysis.
- 250 Contract Administration (3)**
The management of government contracts with private suppliers.
- 251 Retail Management (3)**
Managerial problems and policies concerning financing, location, organization structure, merchandise policies, advertising and sales promotion, personnel management, operating and service policies, accounting and control, and other related retail management problems. Case analysis.
- 261 Seminar: Advanced Management (3)**
Principles of organization. Analysis of organization problems involving the relation of government bureaus and offices with military services, the Congress, the public, other government departments, and with industrial concerns. Review and analysis of business administration and management. Intensive training in conference techniques and the oral presentation of points of view.
- 263 Business Organization and Management (3)**
Principles and techniques of administration and management. Analysis of methods of forecasting, planning, organizing, assembling personnel and resources. Historical development of management as a background for present day methods.

- 286 Management in the Armed Forces (3)**
Special problems of military organization and management; applicability of business management techniques to the armed forces.
- 288 Executive Leadership (3)**
Examination of principles and problems of executive leadership and development; intensive consideration of basic issues and guides to executive action in business and public administration; review of the literature, significant research findings, and practical illustrations.
- 291 Seminar in Business Management (3)**
Research on various phases of management as practiced in American industry.
- 293-94 Business Research (3-3)**
- 296 Seminar: Financial Management (3)**
Research on advanced problems of financial analysis and management.
- 297 Case Studies in Business Administration (2 or 3)**
Problems of management are analyzed with the view of developing a practical solution: cases are used to show the problems of personnel in marketing, industrial management, finance, etc.
- 299 Thesis Seminar (3)**
An examination of thesis standards, research philosophy, and methodology.
- 300 Thesis (3)**

HEALTH CARE ADMINISTRATION

- 153-54 Survey of Health Care Organization and Procedures (3-3)**
(Formerly Health Care Administration 150-51)
Lectures and discussions. (May be audited.) Primarily for students in Continuing Education in Health Care and related fields or medical care organizations who wish an overall knowledge of organization and procedures used in hospitals, long-term care facilities such as nursing homes, and homes for the aged. This is a two-semester sequence. (Not open to degree candidates in Health Care Administration.) Students wishing to take the course for graduate credit must take the Health Care Administration 203 laboratory.

PUBLIC ADMINISTRATION

- 199-200 Research (3-3)**
- 211 Problems of Governmental Organizations (3)**
Analysis of the application of organizational theories and practices to government agencies, with particular emphasis on internal organization and control. Special problem areas are examined, such as decentralization, staff line and field-headquarters relationships, and the role of committees.
- 213 Administration in Government (2 or 3)**
A critical analysis of federal administrative organizations, their achievements and pathologies. The roles of Congress, the Presidency, the Courts, interest groups, political parties, and the public in the administrative process are studied with special attention to centripetal and centrifugal forces at work.
- 221 Staff Functions in Government (3)**
Designed primarily to provide an understanding of the nature, use, and problems of the staff functions as tools of management. Survey of such staff areas as personnel, budgeting, controllership, procurement, property management, the agency lawyer, etc.

curity, public relations and information, planning, research, the secretariat, management engineering, auditing, accounting, and administrative services.

232 Federal Personnel Procedures (3)

Study of such personnel functions as recruitment, selection, placement, promotion, supervision, evaluation, classification, and training. Practical problems of personnel administration.

233 Seminar: Manpower Development and Utilization (3)

Research projects and case studies in ways and means of increasing employee potential, use of training programs, executive development, incentive systems.

251 Governmental Budgeting (2 or 3)

The role of budgeting in management; the principles and practices of budgetary formulation and administration.

252 Seminar: Planning and Programming (2 or 3)

The administrative processes of planning and programming in government, relationships to budgeting, planning and programming as a basis of managerial control, evaluation of accomplishments.

260 Seminar: Policy Formulation and Administration (3)

Development of agency goals and objectives and administration of agency policies; influence of individuals upon them; factors involving informal organization and role of executive in furthering administrative policy.

261 The Public and the Administrator (3)

The nature of the public interest, ways of determining public opinion, public opinion and the decision-making process, theories and methods of working with the public, interest groups, public relations and information programs.

272 Seminar: Public Personnel Administration (3)

The purpose of this course is to provide advanced students with directed reading in specific areas of public personnel administration.

298 Case Studies in Public Administration (3)

Analysis and discussion of problems in public management by use of the case method.

299 Thesis (3)

An examination of thesis standards, research philosophy, and methodology.

300 Thesis (3)

History*

Chairman: Wood Gray, Ph.D., Professor of American History, Building D, Room 417 (2013 G Street NW.), FEderal 8-0250, Extension 232.

39-40 The Development of European Civilization in Its World Context (3-3)

Primarily for freshmen. *First half*: the political, social, economic, and cultural history of the Old World from ancient times to 1715. *Second half*: from 1715 to the present.

* History 39-40 is prerequisite to courses 199 through 152 and 167 through 196; History 71-72, to courses 173 through 184; either History 39-40 or 71-72 to courses 161 through 192.

- 71-72 *The Development of the Civilization of the United States* (3-3)
Primarily for sophomores. *First half*: the political, social, economic, and cultural forces of the United States in their world setting from 1492 to 1865. *Second half*: from 1865 to the present.
- 145-46 *History of Russia* (3-3)
An 1100-year survey of the rise and revolution of Russia. *First half*: Russia under the Old Regime, 860-1900. *Second half*: Revolution and Soviet rule, 1900-1960.
- 149-50 *European Diplomatic History* (3-3)
Background of the European state system and of diplomatic practices and relations since the Congress of Vienna, with emphasis on the policies and actions of the great powers and their statesmen. *First half*: to 1878. *Second half*: since 1878.
- 164 *South America since Independence* (3)
Development of the independent South American states in the 19th and 20th centuries.
- 166 *Mexico and the Caribbean since Independence* (3)
A survey of the republics of Mexico, Central America, and the Caribbean islands.
- 171-72 *Social History of the United States* (3-3)
Daily life, institutions, intellectual and artistic achievements of the Agrarian Era 1607-1861; and the Urban-Industrial Era, 1861 to the present time.
- 181-82 *Diplomatic History of the United States* (3-3)
Tendencies toward isolation, expansion, and collectivism; disputes with foreign countries and their settlement; and the activities of the American secretaries of state and diplomatic agents. *First half*: to 1898. *Second half*: since 1898.
- 183 *Oversea Expansion of the United States* (3)
The political, economic, social, and cultural life of our outlying possessions.
- 245-46 *Seminar: Eurasian History* (3-3)
- 281-82 *Seminar: Diplomatic History of the United States* (3-3)

Home Economics

Chairman: Kathryn Towne, A.M., Professor of Home Economics, Building B, Room 20
(2024 G Street NW.), FEderal 8-0250, Extension 363

- 173 *Home Furnishings* (3)
A course for teachers in house furnishings as part of the environment of modern home life; the role of beautiful homes in the development of ideals and value scales; the choice of materials in the light of family means.
- 199 *Seminar in Current Problems in Home Economics and Related Subjects and Their Interpretation for Classroom Teaching* (3)

International Affairs

Chairman: Hiram Miller Stout, Ph.D., Professor of International Affairs, Hall of Government, Room 204 (710 Twenty-first Street NW.), FEderal 8-0250, Extension 661 or 607

- Anthropology 263. *Culture Contact and Change* (3 or 4†)
- Economics 251. *Economic Development* (3 or 4†)
- History 246. *Seminar: Eurasian History* (3 or 4†)
- International Affairs 99-100. *Research* (3-3)
- International Affairs 260. *Fundamentals of National Power** (3)
- International Affairs 261. *International and United States Foreign Policy** (3)
- International Affairs 262. *National Security Policy of the United States** (3)
- International Affairs 297. *Readings in International Affairs** (1, 2, or 3)
- International Affairs 299-300. *Thesis** (3-3)
- Political Science 172. *Organization and Function of the United Nations* (3 or 4†)
- Political Science 212. *Seminar: Comparative Government and Politics* (3 or 4†)
- Political Science 283. *Topics in International Law* (3 or 4†)
- Political Science 285. *Diplomacy Since World War II* (3 or 4†)

Journalism

Chairman: Ross Pelton Schlabaeh, Jr., M.S., Professor of Journalism, Library, Room 406 (2023 G Street NW.), FEderal 8-0250, Extension 379 or 498

141. *General Editing for Publication* (3)
Editing procedures and techniques, proof reading, titles, arrangement, layout, type uses. Intended for students preparing for trade publications and public relations work rather than newspaper work.
145. *Principles and Problems of Public Relations* (3)
Principles, problems, and ethics of public relations for government agencies, commercial establishments, educational and other public institutions. Case histories of successful programs.

* War Colleges' curricula only.

† Four semester hours of credit allowed only for degree candidates in the Master of Science in International Affairs curricula in the War Colleges.

Mathematics*

Chairman: Nels David Nelson, Ph.D., Professor of Mathematics, Monroe Hall, Room 422 (2115 G Street NW.), Federal 8-0250, Extension 388

- 3 *College Algebra* (3)
Exponents and logarithms; linear equations; complex numbers; quadratic equations; introduction to theory of equations; mathematical induction and the binomial theorem; permutations, combinations, and probability; determinants; progressions. Prerequisite: one year each of high school algebra and high school geometry.
- 6 *Plane Trigonometry* (3)
Prerequisite: two years of high school algebra and one year of high school geometry, or Mathematics 3 (or concurrent registration therefor).
- 9 *General Mathematics I* (3)
For those students in the School of Education or others electing Mathematics 9 and 10 as a terminal sequence in mathematics. Propositional logic and truth values; the number system, number bases, arithmetical computation; algebraic functions; topics from plane geometry. Prerequisite: two years of high school mathematics. Not open to students who have had former Mathematics 2.
- 10 *General Mathematics II* (3)
An introduction to matrices and vector spaces; non-Euclidean geometry; introduction to concepts of the calculus. Prerequisite: Mathematics 9 or former 2.
- 15 *Finite Mathematics I* (3)
Truth value connectives and switching circuits, partitions and counting; probability theory. Prerequisite: two years of high school mathematics.
- 16 *Finite Mathematics II* (3)
Vectors and matrices, mathematics of finance and accounting, linear programming, introduction to game theory. Prerequisite: Mathematics 15.
- 21 *Calculus I* (3)
Elementary concepts of analytic geometry. Differentiation and integration of algebraic functions with applications. Prerequisite: Mathematics 3 and 6; or two years of high school algebra, one year of high school geometry, and one-half year of high school trigonometry; or the equivalent.
- 22 *Calculus II* (3)
Differentiation and integration of transcendental functions and applications, topics in analytic geometry, techniques of integration. Prerequisite: Mathematics 21.
- 23 *Calculus III* (3)
Vector concepts, improper integrals, polar coordinates, and infinite series. Prerequisite: Mathematics 22.
- 24 *Calculus IV†* (3)
Multiple integration and partial differentiation with applications, vectors and solid geometry, differential equations. Prerequisite: Mathematics 23.

* No courses numbered 1 to 100 are available for college credit if the student's previous training in mathematics meets the prerequisite for a higher numbered course.

† Graduate credit may not be given for courses numbered 101 to 200 without the permission of the Chairman of the Department.

Mathematics 24 or former 31 is prerequisite to all courses numbered 101-200. Exception to this rule may be made for Mathematics 122 and 124. Students anticipating a substantial concentration in mathematics should consult with the Department about early completion of these courses.

- 110 *Mathematics for Meteorologists* (3)
- 111 *Mathematics for Engineers and Physicists I* (3)
Differential equations, linear algebra.
- 112 *Mathematics for Engineers and Physicists II* (3)
Fourier series, Laplace transformation, partial differential equations. Prerequisite: Mathematics 111 or former 132.
- 122 *Introduction to Abstract Algebra* (3)
- 124 *Introduction to Matrix Theory* (3)
Elementary theory of finite vector spaces, determinants, equivalence, matrices with polynomial elements, similarity of matrices.
- 130 *Introduction to Finite Differences* (3)
Finite integration and applications, interpolation (approximate integration), and difference equations including Seliwanoff's treatment of the homogenous equation.
- 139 *Advanced Calculus I* (3)
Limits, continuity, real number system, mean value theorems, partial differentiation, implicit function theorems, transformations, and mappings.
- 153 *Introduction to Numerical Analysis* (3)
Digital computers, accuracy, interpolation, quadrature, numerical solution of equations including differential equations. Prerequisite: Mathematics 111 or former 132.
- 171 *Vector Analysis* (3)
- 172 *Tensor Analysis* (3)
Review of vectors and matrices, transformation groups, curvilinear coordinates, covariant and contravariant tensors, derivatives and integrability conditions. Prerequisite: Mathematics 171.

Philosophy

Acting Chairman: Richard Harold Schlagel, Ph.D., Associate Professor of Philosophy,
Building N, Room 30 (718 Twenty-first Street NW.), FEderal 8-0250, Extension 538

51-52 *Introduction to Philosophy* (3-3)

A critical introduction to the problems of modern philosophy in relation to scientific and social developments since the Renaissance. This course is not merely intended as an introduction to those courses in philosophy which follow but is a unit complete in itself for those students in other departments interested in the problems of philosophy relevant to modern thought.

121-22 *Logic and Scientific Method* (3-3)

First half: the elementary principles of valid reasoning with emphasis on developing skill in using these principles, introductory consideration of symbolic logic, the nature of a formal system. *Second half:* general analysis of the methods of investigation and reasoning used in the natural and social sciences, procedures and requirements of definition, classification and sorting, analogical and inductive inference, causal determination, the nature and function of hypothesis, measurement, principles of the theory of probability.

Physical Education

Chairman for men: Joseph Henry Krupa, M.S., Ed.D., Professor of Physical Education for Men, Building S, Room 11 (2025 H Street NW.), Federal 8-0250, Extension 301
Chairman for women: Loretta May Stallings, A.M., Associate Professor of Physical Education for Women, Building H, Room 20 (716 Twentieth Street NW.), Federal 8-0250, Extension 341 or 678

101 *Physical Education in the Elementary School* (3)

Physical growth and development of the child and adolescent. Survey of age characteristics and organizations of physical education activities for the various age levels in elementary school, playground, and settlement house programs. Methods and materials of tumbling, games, dance, and self-testing activities.

Physics

Chairman: Herman Hedberg Hobbs, Ph.D., Professor of Physics, Samson Hall, Room 201 (2036 H Street NW.), Federal 8-0250, Extension 361

1-2 *General Physics* (4-4)

Lecture (2 hours), recitation (1 hour), laboratory (2½ hours). Principal phenomena of classical and modern physics. *First half:* a study in depth of selected topics in classical physics which form a foundation for and lead to an understanding of modern physics. *Second half:* the fundamental concepts of atomic, nuclear, solid state, and related fields of modern physics. Prerequisite: two years of college preparatory mathematics or concurrent registration in Mathematics 6. Material fee, \$11 a semester.

13 *Introductory Physics* (3)

Lecture (1 hour), recitation (1 hour), laboratory (2½ hours). Elementary electricity and magnetism. Prerequisite: former Physics 11. Material fee, \$11. (Offered last time fall 1964-65.)

15 *General Physics* (3)

Laboratory (2½ hours). Electricity and magnetism. Prerequisite: former Physics 14, Mathematics 22 (or former 30). Material fee, \$11. (Offered last time spring 1964-65.)

16 *General Physics* (3)

Modern physics, molecular structure of matter, structure of the atom. Prerequisite: Physics 13 or 15, Mathematics 22 (or former 30) and consent of the instructor.

51-52 *Introduction to Experimental Physics* (2-2)

Experiments and lectures on the basic phenomena of physics and techniques of experimentation and interpretation of data. The following areas are covered: statistical treatment of data, electricity and magnetism, electronics, optics, heat, and modern physics. This course is designed to show the phenomena that are the basis of the theoretical aspect of physics and to introduce the student to experimental techniques necessary for further work in natural sciences. Prerequisite: Physics 1-2. Material fee, \$11 a semester.

113 *Atomic Physics* (3)

Properties of elementary particles, interactions with radiation, atomic structure, optical and X-ray spectra, introduction to wave mechanics. Prerequisite: Physics 16, 101 or 105, or the equivalent; Mathematics 24 (or former 31). (Offered last time fall 1964-65.)

Political Science

Chairman: Hugh Linus LeBlanc, Ph.D., Professor of Political Science, Hall of Government, Room 406 (710 Twenty-first Street NW.), Federal 8-0250, Extension 684

1 *Introduction to Government* (3)

Basic principles and problems of political life; theories, forms, and processes of government in the United States and foreign countries. Attention is also given to international relations.

9-10 *Government of the United States** (3-3)

First half: structure, powers, and operation of the Federal Government: Congress, the President, and the Supreme Court; elections, political parties, and pressure groups. *Second half:* state and local governments; civil rights; major functions of government at federal, state, and local levels.

99-100 *Research* (3-3)107 *Problems in Modern Political Thought* (3)

Developments of democratic political institutions and analysis of the main challenges to constitutional democracy in the 19th and 20th centuries.

111 *Introduction to Comparative Government and Politics* (3)

Government and politics of the principal constitutional democracies of Western Europe: Great Britain and France.

112 *Introduction to Comparative Government and Politics* (3)

Government and politics of the principal political systems of Central and Eastern Europe: Germany and the Soviet Union.

113 *Political Problems of the British Commonwealth of Nations* (3)

From Colonial Empire to modern Commonwealth: questions of equal partnership; governments and policies in the principal Commonwealth states; problems of new states in Asia and Africa.

121-22 *The Constitution of the United States* (3-3)

Judicial power of federal courts in constitutional interpretation. *First half:* emphasis on separation of powers, federal-state relationships, and taxation. *Second half:* emphasis on constitutional protection of civil rights.

145 *Political Parties and Politics* (3)

Organization and operations of political parties in the United States: major and minor parties, bosses and corruption, nominations and elections, influence on President and Congress.

146 *Political Pressures and Public Reactions* (3)

Public opinion, special interest lobbies, and pressure groups as they operate on government to influence public policy.

* Prerequisite to all courses from 107-200.

151-52 Public Administration (3-3)

Introductory survey of the theory and practice of governmental administration and its relation to politics, legislation, the courts, and nongovernmental organizations and interests.

171 International Politics (3)

Basic forces underlying the conduct of international relations and the formation of foreign policy; power politics, imperialism, collective security, and international cooperation.

172 Organization and Function of the United Nations (3)

Development and current operation of international organization within the system of sovereign states with emphasis on the United Nations.

181-82 Survey of Public International Law and Organization (3-3)

(Formerly International Law)

Survey of the public law of nations with emphasis on the law of peace. Neutrality and the so-called law of war receive attention in the second semester.

190 Politics of Middle and Southern Africa (3)

(Political Science 190, 191, and 192 replace former 191 and 192)

The political life of the states and dependent territories of non-Mediterranean Africa, including the upper Nile valley and the Horn of Africa. Special attention to the specifically regional aspect of the foreign policies of these countries

191 Governments and Politics of the Middle East (3)

(Political Science 190, 191, and 192 replace former 191 and 192)

Domestic and international politics of the Eastern Arab States and Principalities, Turkey, Iran, and Israel. Attention will be given to their roles in regional and international organizations.

192 Governments and Politics of North Africa (3)

(Political Science 190, 191, and 192 replace former 191 and 192)

Domestic and international politics of Algeria, Tunisia, Morocco, Libya, Egypt, and Sudan. Attention will be given to their relations with the states of the Middle East.

193 Governments and Politics of South and Southeast Asia (3)

(Political Science 193 and 194 replace former 194)

Domestic and international politics of the major states in the area with particular reference to India.

194 Governments of China and Japan (3)

(Political Science 193 and 194 replace former 194)

Institutions and processes of government of contemporary China and Japan, with some historical background. Special attention will be paid to ideological forces.

212 Seminar: Comparative Government and Politics (3)

Selected topics and problems on comparative political and administrative institutions and the politics of modern constitutional governments and dictatorships. Each semester is devoted to a selected country or significant institutional or policy problem. Attention will be directed to questions of method.

271-72 Problems in International Organization (3-3)

Reading and research as a basis for analyzing developments in general and regional international organizations.

283 Topics in International Law* (3)

A consideration of theory, problems, and cases in the public law of nations including the law of peace and the law of war.

* War Colleges' curricula only.

285 *Diplomacy Since World War II** (3)

Recent changes in diplomatic procedures and objectives as compared with those of earlier periods.

299-300 *Thesis* (3-3)

Psychology

Chairman: John Lincoln Finan, Ph.D., Professor of Psychology, Monroe Hall, Room 106 (2115 G Street NW.), FEderal 8-0250, Extension 283

1 *General Psychology*† (3)

The fundamental principles underlying human behavior.

8 *Psychology of Adjustment* (3)

(Formerly Psychology 4)

Processes involved in the total adjustment of the individual with emphasis on social environment; development in the individual of adjustment techniques.

22 *Introduction to Educational Psychology* (3)

Consideration of individual and group differences, adjustments, and the psychology of learning in relation to education and training.

29 *Psychology of Childhood* (3)

A genetic approach to the study of the child. Special emphasis is placed on the socialization process, learning, and the child's view of the world.

101 *Abnormal Psychology* (3)

The causes, diagnosis, treatment, and prevention of the various types of maladjustments and mental disorders. Prerequisite: 6 credits in psychology, or 3 credits in psychology and 6 credits in a biological science.

112 *Psychology of Adolescence* (3)

Psychological characteristics and problems peculiar to adolescence, with emphasis on applications of psychology to solution of such problems.

118 *Physiological Psychology* (3)

Basic structure and functions of sensory systems, motor systems, central nervous system, autonomic nervous system, and endocrine system with special emphasis upon the relations between physiological functioning and behavior.

121 *Psychology of Learning* (3)

(Formerly Educational Psychology)

Current learning theories and issues.

125 *Mental Hygiene* (3)

A course for teachers in the application of psychological principles to classroom procedures for purposes of assisting the teacher to recognize and deal with early symptoms of maladjustment.

127 *Employee Counseling* (3)

Employee counseling as a management technique and its contribution to management; a survey of its basic objectives, principles, and procedures.

* War Colleges' curricula only.

† Psychology 1 is prerequisite to all other courses in psychology.

129 Motivational Factors in Personality (3)
(Formerly Introduction to Counseling)

A survey of basic principles and assessment techniques, with emphasis on applications to counseling.

131 Psychological Tests (3)

A survey of psychological tests and their more common uses in business, industry, government, law, medicine, and education. Material fee, \$7.

144 Personnel Psychology (3)

Psychological concepts and techniques in personnel management and supervision. Applications to government, industry, and military organizations.

145 Principles of Human Relations (3)

Survey of the psychological principles involved in dealing with individuals and groups.

148 Psychology of Advertising and Consumer Behavior (3)

The motivational and social processes in economic behavior. Consideration of current techniques and findings in motivational research. Evaluation of the effectiveness of mass media, public relations programs, and strategies of persuasion.

149 Human Relations in Management (3)

A consideration of the management process in terms of human behavior, with emphasis upon group processes, leadership, social interaction, motivation, and problem-solving techniques. Material fee, \$5.

151 Social Psychology (3)

The social foundations of attitudes and behavior. Individual adjustment to group situations, such as the family, school, fraternity, and occupation. The psychological basis of race prejudice, nationalism, and war.

153 Psychological Factors in Delinquency (3)

Historical and sociological factors in delinquency; historical attitudes toward the offender, theory, and practice; patterns of failure; early preventive measures; research in delinquency prediction; rehabilitation as team work by parents, school, community, church, and (where necessary) the institution.

156 Psychology of Propaganda and Public Opinions (3)

The psychology of opinion formation, the measurement of opinion, the social determinants of attitudes, the psychological processes in propaganda, the bases of receptivity of propaganda, psychological warfare.

209 Seminar: Psychology of Motivation (3)

A consideration of various theoretical approaches to the psychology of motivation and systematic concepts and experimental findings deriving from each approach

225 Seminar: Mental Hygiene (3)

A study of mental health problems with special attention to needs of counselors, teachers, and others working with children and adolescents.

231 Test Construction (3)

The principles underlying test construction; statistical techniques in the construction, evaluation, and standardization of psychological, educational, and vocational tests. Prerequisite: a course in tests and measurements and an elementary course in statistics.

244 Seminar: Job and Workers Analysis (3)

245 Seminar: Employee Motivation and Morale (3)

246 Seminar: Personnel Measurement Techniques (3)

Detailed consideration of the techniques of personnel selection and performance evaluation. The use of employment tests, personal data, assessment interviews, and performance ratings.

254 Seminar: Group Dynamics (3)

The experimental study of small groups; autocratic and democratic group climates; interaction process analysis; Lewin's field-theoretical approach to individual and group processes.

255 Seminar: Techniques of Opinion and Attitude Measurements (3)

Methods of attitude measurement (interviews, questionnaires, scales, polls) as currently used by private and governmental investigators. The place of attitude studies in schools, industry, government, etc.

264 Sensitivity Training: Human Relations Laboratory Course (3)

A sensitivity learning experience in human relations. The course is built around an unstructured group experience with opportunities for individual feedback, experimentation, and practice. The goal of the course is the development of self-insight, situational sensitivity, and diagnostic skills in human relations. Prerequisite: 9 semester hours in psychology or sociology.

265 Theory and Design in Human Relations Training (3)

Designed for those interested or involved in conducting human relations training. Theories of learning are reviewed. The laboratory approach to human relations training is explored in depth. Practice in designing, developing training skills, and evaluation of training are covered. Prerequisite: Psychology 264 or a human relations laboratory learning experience.

267 Theories of Organization (3)

Theory and research in formal organizations. Classical, human relations, and information processing theories of organizations. The effects of organizational design on communication processes, leadership, decision-making, intergroup relations, small group formation, status hierarchies, productivity, motivation, and morale. Open to graduate students in psychology and graduate administrative programs.

299-300 Thesis (3-3)

Public Administration

See "Government and Business"

Religion

Chairman: Robert Gean Jones, B.D., Ph.D., Associate Professor of Religion, Building O, Room 21 (2106 G Street NW.). FEderal 8-0250, Extension 602 or 279.

9 The Old Testament (3)

A historical and literary approach to the study of the books of the Old Testament with special consideration given to the development of religious ideas, institutions, and outstanding personalities.

10 The New Testament (3)

A study of the literature of the New Testament from the standpoint of occasion, purpose, dominant ideas, and permanent values. Special emphasis on the approach, the structure, and the significance of the Gospels and Epistles.

59-60 History of Religion (3-3)

First half: primitive and ancient national religions; Confucianism, Taoism, Buddhism, Hinduism, and Shintoism—their historical setting, founders, and development of religious thought and culture. *Second half:* Judaism, Christianity, and Islam—analysis of their origin, evolution, and contemporary status.

191 Christian Education in the Church (3)

Principles of religious education; factors conditioning Christian growth; functions of family, church, community, and state.

192 Christian Education in the Church (3)

The unified program of the the church; worship, study, and service; developing lay educational leadership; housing and equipment; curriculum construction; evaluation of materials; lesson planning and teaching methods.

Romance Languages and Literatures

Chairman: William Graham Clubb, Ph.D., Professor of French, Building A, Room 10 (2026 G Street NW.), FEderal 8-0250, Extension 425, 426

FRENCH

1-2 First-year French (3-3)

A year course: credit is not given for the first half until the second half is completed. For beginners. Pronunciation, conversation, grammar, composition, reading of modern French prose.

3-4 Second-year French (3-3)

A year course: credit is not given for the first half until the second half is completed. Conversation, grammar, composition, reading in modern French prose, introduction to French civilization. Prerequisite: French 1-2 or two years of high school French.

51-52 Survey of French Literature and Civilization (3-3)

The social, artistic, and cultural background of French civilization. Lectures, readings, recitations, and informal discussions.

SPANISH

1-2 First-year Spanish (3-3)

A year course: credit is not given for the first half until the second half is completed. For beginners. Pronunciation, conversation, grammar, composition, reading of modern Spanish prose.

3-4 Second-year Spanish (3-3)

A year course: credit is not given for the first half until the second half is completed. Conversation, grammar composition, reading of modern Spanish prose, introduction to Hispanic civilization. Prerequisite: Spanish 1-2 or two years of high school Spanish.

51-52 Survey of Spanish Literature and Civilization (3-3)

The social, artistic, and cultural background of Spanish civilization. Lectures, readings, recitations, and informal discussion.

Russian

See "Slavic Languages and Literatures"

Secretarial Studies

Acting Department Chairman: Olive Jean McKay, A.M., Ed.D., Building F, Room 28
(706 Twentieth Street NW.), Telephone: 965-2350

1 Elementary Typewriting (3)

Fundamental techniques of typewriting, basic styles of business letters, introduction to tabulation, and preparation of general office forms.

2 Intermediate Typewriting (3)

The business letter and its arrangement, advanced tabulation, manuscript typing, office forms, stencil cutting, and legal documents. **Prerequisite:** Secretarial Studies 1 or the equivalent; ability to type accurately at 30 words a minute.

11 Elementary Shorthand and Transcription (3)

A study of the principles of Gregg shorthand correlated with dictation and transcription. **Minimum** dictation speed of 60 words a minute attained.

12 Intermediate Shorthand and Transcription (3)

Review of the principles of Gregg Shorthand. Dictation and transcription on general and specialized business subjects. **Minimum** dictation speed of 80 words a minute attained. **Prerequisite:** Secretarial Studies 11 or the equivalent; ability to take dictation at 60 words a minute.

15 Advanced Shorthand, Typewriting, and Transcription (3)

Dictation and transcription involving vocabularies in specific businesses. **Minimum** speed of 100 words a minute attained in dictation. **Prerequisite:** Secretarial Studies 12 or the equivalent.

16 Secretarial Shorthand, Typewriting, and Transcription (3)

Dictation and transcription involving vocabularies used in the legal and medical professions. **Minimum** dictation speed of 120 words a minute attained. **Prerequisite:** Secretarial Studies 15 or the equivalent.

51 Business Correspondence (3)

Development of the technique of effective communication with reference to business letters and forms. Survey and analysis of current business literature.

54 Secretarial Practice (3)

A thorough study of secretarial problems and procedures. Practice in the use of secretarial equipment and supplies. The study of secretarial personality and office relationships.

Slavic Languages and Literatures

Chairman: Helen Bates Yakobson, B.S., Associate Professor of Russian, Building X, Room 2 (2107 H Street NW.), FEderal 8-0250, Extensions 275, 496.

1-2 First-year Russian (3-3)

A year course: credit is not given for the first half until the second half is completed. A beginner's course in fundamentals of grammar and pronunciation with graded reading, oral drill, and written practice. Listening comprehension and oral practice.

1S-2S Scientific Russian for Beginners* (3-3)

An introduction to the essentials of Russian grammar and reading of modern scientific texts.

3-4 Second-year Russian (3-3)

A year course: credit is not given for the first half until the second half is completed. Systematic review of grammar. Study of special problems of Russian morphology and syntax. Oral and written reports on assigned topics.

9-10 Russian Conversation (3-3)

Listening comprehension and oral practice. Prerequisite: Russian 3-4 or permission of the instructor.

91-92 Introduction to Russian Literature (3-3)

A survey of Russian literature, in translation, from the earliest periods through the literary masterpieces of the 19th and early 20th centuries given in English. Lecture, recitation, and discussion.

93-94 Introduction to Slavic (non-Russian) Literature (3-3)

A survey of non-Russian Slavic literatures, in translation, from the early periods to the present, with emphasis on the contemporary scene. Lecture, recitation, and discussion.

101-2 Readings in Modern Russian (3-3)

Representative Russian readings in the social sciences and Soviet periodical literature; study of current political terminology, abbreviations, and Soviet idiom.

103-4 Scientific Russian (3-3)

Readings in major fields of Russian contemporary scientific literature.

161-62 Russian Culture (3-3)

A survey of Russian cultural heritage from the origins of ancient Russia to the present given in English. Lecture, recitation, discussion, and individual reports on assigned topics.

* This is a special course. It cannot serve as a prerequisite to any advanced course in Slavic Languages and Literatures.

Sociology and Anthropology

Acting Department Chairman: Richard Walton Stephens, Ph.D., Professor of Sociology and Anthropology, Building X, Room 9 (2107 H Street NW.), FEderal 8-0250, Extension 387, 530, 585

SOCIOLOGY

- 2 *Man, Culture, and Society II** (3)
(Formerly Sociology and Anthropology 1)
Development of culture and personality, the impact of groups and institutions on man's social behavior. A survey of the fields within sociology.
- 41 *American Social Problems* (3)
(Formerly Sociology and Anthropology 2)
Analysis of major social problems confronting the United States. Factors producing social problems; their nature and treatment.
- 126 *Urban Sociology* (3)
The place of the city in the larger society; growth of the city, problems of urban living, group life, personality, urban housing, and city planning. Includes consideration of suburban development.
- 131 *Social Institutions* (3)
Functional analysis of basic social institutions: family, education, religion, economy, and state in the structure of American Society.
- 132 *Courtship and Marriage* (3)
Dating and courtship as social processes, reasons for marriage, marriage laws, mate selection, factors in marital adjustment; prediction and counseling.
- 135 *Juvenile Delinquency* (3)
Factors producing delinquency, juvenile detention, the juvenile court, training schools, treatment of offenders.
- 136 *Criminology* (3)
Nature and distribution of crime, police and court systems, prisons and reformatories; treatment and prevention of crime.
- 148 *Methods of Social Research* (3)
(Formerly Sociology and Anthropology 181)
Analysis of social research techniques and the scientific method; application to social data of the case study, social survey, statistical, sociometric, and experimental methods.
- 221 *Seminar: Current Trends in Sociology* (3)
Analysis and evaluation of recent developments in sociology and an appraisal of the role of systematic theory in sociology.
- 241 *Population Problems* (3)
Composition of populations, trends in population growth and population pressure, factors producing population movements, effects of migration, population policies: eugenics and birth control.

* Anthropology 1 and Sociology 2 combine to make a year course, which is prerequisite to all other courses in Sociology and Anthropology.

ANTHROPOLOGY

- 1 *Man, Culture and Society I** (3)
(Formerly Sociology and Anthropology 51)
The physical evaluation of man and the origins and development of culture, including a survey of the topic divisions of the field.
- 152 *Physical Anthropology* (3)
A study of human variation past and present, seen as a product of physical and cultural evolution.
- 263 *Culture Contact and Change* (3)
Western impact on non-Western cultures. The workings and the processes of social change as variant cultures and ethical systems interact.

Spanish

See "Romance Languages and Literatures"

Speech

Chairman: Lubin Poe Leggett, A.M., Ed.D., Depew Professor of Speech, Lisner Auditorium, Room 4 (730 Twenty-first Street N.W.), FEederal 8 0250, Extension 295

- 1 *Effective Speaking* (3)
Preparation and delivery of extempore speeches, developing confidence and poise, body and voice control; selecting and organizing material. Recording fee, \$2.
- 2 *Persuasive Speaking* (3)
A continuation of Speech 1, which is prerequisite, with emphasis on speech composition and elementary principles of persuasion.
- 11 *Voice and Diction* (3)
Developing ease, naturalness, and clarity in the speaking voice. Analysis of individual voices through recordings. Phonetic approach to the study of the sounds of English, the standards of speech. Class instruction in the problems of rate, volume, pitch, and quality. Recording fee, \$4.

* Anthropology 1 and Sociology 2 combine to make a year course, which is prerequisite to all other courses in Sociology and Anthropology.

111 Effective Speech Communication* (3)

The tools and principles of effective speech communication, including practice in the organization, delivery, and the evaluation of presentations commonly encountered by professional personnel. Not open to speech majors.

121 Group Discussion and Conference Leadership (3)

The process of thinking and problem solving in committees and small groups, and the methods of leading discussions and conferences. Prerequisite: 6 hours of speech or the permission of the instructor.

169 Creative Dramatics (3)

A study of creative dramatics and its use as a learning tool.

170 Children's Theater (3)

Theory and practice in creating and producing plays for children.

Statistics

Chairman: Solomon Kullback, Ph.D., Professor of Statistics, Hall of Government, Room 403 (710 Twenty-first Street NW.), Federal 8-0250, Extension 740

51 Introduction to Business and Economic Statistics† (3)

Lecture (2 hours), laboratory (2 hours). Survey of elementary principles and procedures for presenting, analyzing, and interpreting statistical data; consideration of characteristic values; measures of variability, sampling processes, index numbers, time series analysis, and simple correlation. Prerequisite: one entrance unit in algebra. Laboratory fee, \$9.

52 Mathematics of Finance‡ (3)

Interest and discount, annuities, valuation of stocks and bonds, sinking funds, amortization, valuation of depletable assets, depreciation. Prerequisite: one entrance unit in algebra.

91 Principles of Statistical Methods‡ (3)

Lecture (2 hours), laboratory (2 hours). Variates and attributes, averages and dispersion, frequency distributions and their characteristics, regression and correlation, statistical decision processes. Prerequisite: one entrance unit in algebra. Laboratory fee, \$9.

101-2 Basic Principles of Statistical Methods (2 or 3-3)

Variables and attributes, averages and dispersion, elementary principles of sampling, introduction to the making of statistical decisions. (This course is offered both on and off campus.)

104 Statistics in Psychology and Education (3)

Lecture (2 hours), laboratory (2 hours). Introductory study of statistical techniques necessary for application of statistics in research problems in psychology and education.

* This course can be adapted to the needs of a specific group.

† Statistics 51 is offered only on campus. However, Statistics 101-2: Basic Principles of Statistical Methods (3-3), which is offered off campus, may be substituted.

‡ This course is offered on campus only.

110 Quality Control Techniques (3)

Applications of probability and distribution theory to industrial control problems; use of quality control charts; acceptance sampling plans; estimation of lot and process characteristics. **Prerequisite:** Statistics 51 or permission of instructor.

117 Analysis of Variance I (3)

Lecture (2 hours), laboratory (2 hours). The analysis of variance to segregate factors producing significant variation; a method to estimate experimental error, multiple classifications, Latin Square, Greco-Latin Square, factorials; an introduction to model theory. **Prerequisite:** Statistics 91. **Laboratory fee, \$9.**

207-8 Operations Analysis (3-3)

Basic concepts and techniques of operations analysis as applied to problems in business management and economic research. An introduction to the processes of linear programming, game theory, and queuing theory. Admission by permission of the instructor.

271-72 Statistical Information Theory (3-3)

A year course: credit is not given for the first half until the second half is completed. Basic concepts, definitions, and formulas of information theory; their significance and general properties. Shannon's coding theorem, channel capacity, and transmission of information; inequalities of information theory and sufficiency; applications to statistical problems of discrimination and hypothesis testing. Asymptotic distribution theory of information; analysis of contingency tables; loss of information due to grouping and sequential analysis; comparison or experiments.

Zoology

Chairman: Ira Bowers Hansen, Ph.D., Professor of Zoology, Building C, Room 302 (2029 G Street NW.), FEderal 8-0250, Extension 452

BIOLOGY

1-2 Introductory Biology (4-4)

This course is designed to provide the nonscience student with an understanding of the life sciences and to serve as a basis for those who may wish to continue in some aspect of biology. It is the introductory course leading to all second- and third-group courses in botany and zoology, and is taught jointly by the staff members of the two departments. Designed to be taken in either sequence; students may be registered for either 1 or 2. **Material fee, \$10 a semester.**

The University

HISTORY

The George Washington University had its beginning in 1821 as The Columbian College in the District of Columbia. The name of the institution was changed in 1873 to Columbian University and in 1904 to The George Washington University. The debt of the University to George Washington whose name it bears is an intangible one.

George Washington, as President and as private citizen, had urgently insisted upon the establishment of a National University in the Federal City. There he hoped that, while being instructed in the arts and sciences, students from all parts of the country would acquire the habits of good citizenship, throwing off local prejudices and gaining at first hand a knowledge of the practice, as well as the theory, of republican government. To further the materialization of his hopes, Washington left a bequest of fifty shares of The Potomac Company "towards the endowment of a University to be established within the limits of the District of Columbia, under the auspices of the General Government, if that government should incline to extend a fostering hand towards it." The Congress never extended "a fostering hand." The Potomac Company passed out of existence and Washington's bequest became worthless.

Fully conscious of Washington's hopes, but motivated primarily by a great missionary urge and the need for a learned clergy, a group of dedicated ministers and laymen sponsored a movement for the establishment of a college in the District of Columbia. Inspired largely by the zeal and energy of the Reverend Luther Rice, they raised funds for the purchase of a site and petitioned Congress for a charter. After much delay and amendment, Congress granted a charter which was approved by President Monroe on February 9, 1821. To safeguard the College's nonsectarian character it provided "That persons of every religious denomination shall be capable of being elected Trustees; nor shall any person, either as President, Professor, Tutor or pupil, be refused admittance into said College, or denied any of the privileges, immunities, or advantages therefore, for or on account of his sentiments in matters of religion."

During the entire time when the institution was known as Columbian College, its activities were centered on College Hill, a tract of forty-six and a half acres between the present Fourteenth and Fifteenth Streets extending north from Florida Avenue to somewhat beyond Columbia Road. The Medical School was located downtown. For the better part of the Columbian University period, the buildings of the University were situated along H Street between Thirteenth and Fifteenth Streets. The Medical School group still remains there.

During the last half century the University's present plant has been developed in that section of the old First Ward familiarly known as "Foggy Bottom," between Nineteenth and Twenty-fourth Streets, south of Pennsylvania Avenue. The area is

not without its reminders of historic interest to the University. President Monroe who signed the Charter lived at 2017 Eye Street. The first President of the Board of Trustees, the Reverend Obadiah B. Brown, was for fifty years the pastor of a church at Nineteenth and Eye Streets, and Washington selected Twenty-third and E Streets as the site of the National University he had hoped to see established.

THE COLLEGES, SCHOOLS, AND DIVISIONS

The George Washington University includes twelve colleges, schools, and divisions, as follows:

Columbian College of Arts and Sciences offers the four-year programs leading to the degrees of Bachelor of Arts and Bachelor of Science. In cooperation with the Department of Pathology and the University Hospital, it offers a course in Medical Technology leading to the degree of Bachelor of Science in Medical Technology. In addition to the four-year programs, Columbian College offers two-year curricula, including preprofessional and terminal, leading to the degrees of Associate in Arts and Associate in Science. At the graduate level, Columbian College offers studies leading to the degrees of Master of Arts, Master of Science, and Master of Fine Arts.

The Graduate Council offers a program of advanced study and research leading to the degree of Doctor of Philosophy.

The School of Medicine offers work leading to the degree of Doctor of Medicine.

The National Law Center includes the Law School and the Graduate School of Public Law. The Law School offers professional courses leading to the degree of Bachelor of Laws. The Graduate School of Public Law offers programs leading to the degrees of Master of Laws, Master of Comparative Law, and Doctor of Juridical Science.

The School of Engineering and Applied Science offers courses leading to the Engineering Technologists Certificate and the degree of Bachelor of Science in the following areas: Civil Engineering, Communications, Control Systems, Electrical Engineering, Electronics, Energy Conversion, Engineering Science, Machine Computers, Measurement Science, Mechanical Engineering, Structures, Theoretical and Applied Mechanics. Graduate programs lead to the degrees of Master of Science, Master of Engineering Administration, and Doctor of Science.

The School of Education offers undergraduate programs leading to the degrees of Bachelor of Arts in Education and Bachelor of Science in Physical Education, and graduate studies leading to the degrees of Master of Arts in Education, Education Specialist, and Doctor of Education.

The School of Government, Business, and International Affairs offers work leading to the following degrees: (1) Bachelor of Arts in Government with a major in International Affairs or Public Affairs; (2) Bachelor of Business Administration with a major in Accounting, Business Administration, or Business and Economic Statistics; (3) Master of Arts in Government with a major field in Public Administration, Public Affairs, International Affairs, Economic Policy, Business and Economic Statistics, and Personnel Administration; (4) Master of Business Administration with a major field in Accounting, Business Administration, Health Care Administration, or Personnel Administration; (5) Master of Public Administration in the fields of Public Administration or Personnel Administration; (6) Doctor of Business Administration or Doctor of Public Administration.

The College of General Studies supplements the adult education program of the

University through Off-Campus Study; Campus Study; Conferences, Seminars, and Special Projects; and Continuing Education and Noncredit Programs. This College offers programs leading to the degrees of Associate in Arts; Associate in Science; Associate in Secretarial Administration; Bachelor of Arts; Bachelor of Business Administration; Bachelor of Science in Cartography; Master of Science in Business Administration; Master of Science in Financial Management; Master of Science in Governmental Administration; Master of Science in International Affairs; Master of Science in Personnel Administration; and Master of Science in Public Administration.

The Division of University Students makes available campus courses for mature students, not candidates for degrees in this University.

The Division of Air Science offers a program of Air Force ROTC training which is integrated with the curricula of the colleges and schools of the University and leads to appointment as a commissioned officer in the United States Air Force Reserve.

The Summer Sessions.

ACADEMIC STATUS

The George Washington University is accredited by its regional accrediting agency, the Middle States Association of Colleges and Secondary Schools. This is important to students who wish to transfer credits from one institution to another.

The University is on the approved list of the American Association of University Women and is a member of the College Entrance Examination Board.

LOCATION

The George Washington University is in downtown Washington, four blocks west of the White House and east of the Potomac River with its extensive parkway. Within a few blocks are the buildings housing the offices of many of the departments of the Government.

GOVERNMENT

The government and general education management of The George Washington University are vested in a self-perpetuating Board of Trustees, with the President of the University as a member *ex officio*. The members of the Board are named for a period of three years and are divided into three classes. The members of one class are elected at each annual meeting to fill the places of the members whose terms of office expire. Two members of each class are nominated by the Alumni Association.

The General Alumni Association

The objectives of this Association are to unite the graduates who wish to associate themselves for charitable, educational, literary, and scientific purposes, and to promote the general welfare of the University.

Eligible members are those who have matriculated in any school of the University and who have left the University in good standing, or any person who is or has been a member of the teaching, research, or administrative staff of the University, or of the Board of Trustees of the University. Active members are those eligible members who are current contributors to or life members of The George Washington University General Alumni Association, the Alumni Association of any school of the University, or contributors to the Annual Support Program.

The Alumni Office is in Bacon Hall, 2000 H Street NW., Washington, D. C. 20006.

All alumni are urged to keep the Alumni Office informed of changes of address or occupation and to supply information with regard to their fellow alumni.

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* The Dean and Assistant Deans are members *ex officio* of all committees.

† The Dean of Faculties, the Dean and Assistant Deans of the College are members *ex officio* of the Council.

University Buildings

Addresses of University Buildings Referred to in this Directory	Abbreviation
Bacon Hall, 2000 H Street.....	Bacon
Binney Hall, 2018 Eye Street.....	Binney
Book Store, 2120 H Street.....	Book Store
Chapin Hall, 2128 H Street (rear).....	Chapin
Corcoran Hall, 725 Twenty-first Street.....	Cor
Davis-Hodgkins House, 731 Twenty-second Street.....	D H H
Hall of Government, 710 Twenty-first Street.....	Govt
Harlan-Brewer House, 1923 H Street.....	H B H
Hospital, Washington Circle.....	Hosp
International House, 2110 G Street.....	Int H
Lisner Auditorium, 730 Twenty-first Street.....	Aud
Monroe Hall, 2115 G Street.....	Mon
Samson Hall, 2036 H Street.....	Samson
School of Medicine, 1335-1339 H Street.....	MS
Staughton Hall, 707 Twenty-second Street.....	Stau
Stockton Hall, 720 Twentieth Street.....	Sto
Student Union, 2125 G Street.....	Stu Union
Tompkins Hall of Engineering, 725 Twenty-first Street.....	Tompkins
University Library, 2023 G Street.....	Libr
Woodhull House, 2033 G Street.....	Woodhull
Building A, 2026 G Street.....	A
Building AA, 2129 Eye Street.....	AA
Building B, 2024 G Street.....	B
Building BB, 2204 Eye Street.....	BB
Building C, 2029 G Street.....	C
Building CC, 2035 H Street.....	CC
Building D, 2013 G Street.....	D
Building DD, 2120 Eye Street.....	DD
Building E, 2003 G Street.....	E
Building EE, 816 Twenty-first Street.....	EE
Building F, 706 Twentieth Street.....	F
Building FF, 2023 H Street.....	FF
Building H, 714-16 Twentieth Street.....	H
Building I, 2135 G Street.....	I
Building J, 2131 G Street.....	J
Building K, 817 Twenty-third Street.....	K
Building L, 2129 G Street.....	L
Building M, 716 Twenty-first Street.....	M
Building N, 718 Twenty-first Street.....	N
Building O, 2106 G Street.....	O
Building P, 2108 G Street.....	P
Building Q, 2029 H Street.....	Q
Building R, 2027 H Street.....	R
Building S, 2025 H Street.....	S
Building T, 2110 G Street.....	T
Building U, 729 Twenty-second Street.....	U
Building V, 2114 H Street.....	V
Building W, 2128 H Street.....	W
Building X, 2107 H Street.....	X
Building Y, 802 Twenty-first Street.....	Y
Building Z, 708 Twenty-second Street.....	Z

Campus Office Directory

Name	Room	Extension
Academic Publications, Jessie Martin, Editor.....	S-20	514
Accounting	Govt 100	243, 610
Addressograph	Bacon 10	575
Administrative Secretary, Tamis Borden.....	Bldg E	641, 642
Admissions:		
Ruth, J. Y., Director.....	C-101	344
Stoner, G. W. G., Assistant Director.....	C-101	344
Tymeson, Margaret, Assistant to Director of Admissions...	C-105	488
General Studies, College of.....	Bacon 103	540
Graduate Admissions	Bacon 103	439
Medical School.....	1335 H St	209
Air Force Advanced Management Program, W. S. Sommers, Coordinator	Govt 205	404, 588
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Alumni Office, S. Tracy, Director of Alumni Relations.....	Bacon 100	305
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Annual Support Program.....	Bacon 100	433, 305
Anthropology, Department of Sociology and, R. W. Stephens, Acting Chairman	X-9	387, 530, 585
Art Department, D. C. Kline, Chairman.....	D-104	351, 423, 586, 736
Assistant to the President, R. S. Jordan.....	Bldg E	322
Assistant to the President, Special Projects, C. M. Farrington	Bacon 101	412
Assistant to the Vice President, for Planning Research, Sally Shames.....	Bldg E	448
Assistant Vice President—Resources, Warren Gould.....	Bacon 101	555
Athletics:		
Faris, R. K., Director for Men.....	R-1st fl	520
Stallings, Loretta, Director for Women.....	H-20	678, 341
Camp, J. V., Head Football Coach.....	R-1st fl	415
Hanken, R. G., Assistant Football Coach.....	S-10	301, 437
Reinhart, W. J., Head Baseball and Basketball Coach.....	R-2d fl	419
Ticket Office.....	Aud	417
Auditorium Manager's Office, R. T. Tyser, Manager.....	Aud 1st fl	409
Behavioral Sciences Center, G. L. Lippitt, Director.....	CC-11	611
Biochemistry Department, C. R. Treadwell, Chairman.....	MS	394
Book Store:		
Medical Book Store.....	1335 H St	338
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Book Department.....	2120 H St	460
Botany Department, R. B. Stevens, Chairman.....	C 401	459
Business Administration.....	Govt 201	512, 539
Business Office:		
Einbinder, J. C., Business Manager.....	D-9	311
Harria, A. C., Assistant Business Manager.....	D-9	311
Resenblatt, Henrietta, Assistant to the Business Manager	D-9	311
Rondabush, M. M., Plant Engineer.....	Bldg AA	310, 558
Bateman, V. D., Purchasing Agent.....	D-9	311
Mello, J., Parking and Grounds Supervisor.....	D-9	311
Cancer Clinic.....	2300 K St	FE 3-9100

Name	Room	Extension
Cashier's Office:		
Spicer, J. H., Cashier.....	Cor 101	225
McCown, W. D., Assistant Cashier.....	Cor 101	225
Tyrrell, D. J., Assistant Cashier.....	Cor 101	225
Contract Section.....	Cor 101	225
Chapel, University, J. R. Sizoo, Director.....	O-20	259
Chemistry Department, C. R. Nacser, Chairman.....	Samson 201	261
Classical Languages and Literatures Department, J. F. Latimer, Chairman.....	T-21	208
Columbian College of Arts and Sciences:		
Linton, C. D., Dean.....	Mon 205	201
Koehl, G. M., Associate Dean.....	Mon 205	201
Stephens, R. W., Assistant Dean.....	Mon 205	201
King, J. C., Assistant Dean.....	Mon 205	201
Turner, W. L., Assistant Dean.....	Mon 205	201
Special Students Section.....	P-20	206
Comptroller's Office:		
Johnson, W. D., Comptroller.....	Samson 100	544
Burton, L. L., Assistant Comptroller and Internal Auditor	Samson 100	544
Smith, A. E., Assistant Comptroller (Accounting).....	Samson 100	544
Feroe, Frances, Voucher Supervisor.....	Samson 100	223
D'Auria, Therean, Payroll Supervisor.....	Samson 100	654
Kreppein, H., Tabulating Supervisor.....	Samson 100	615
Computer Center (University).....	D-101	735
Contract Research Office:		
Greene, Margaret, Assistant Treasurer.....	Cor 102	581
Rydholm, W. N., Assistant to the Treasurer.....	Cor 102	580
Dean for Sponsored Research:		
Van Evera, B. D., Dean.....	Bacon 200	681
Head, N. M., Assistant Dean.....	Bacon 200	681
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Brown, J. A., Vice President and Dean of Faculties.....	Bldg E	448
Bright, H. F., Associate Dean of Faculties.....	Bldg E	494
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Dean of Men, P. V. Bissell.....	Q-10	334, 421
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Dining Services:		
Kloetzli, R. E., Director.....	Stu Union Annex Room 11	675 or 965-2466
Faculty Club.....	714 21st St	368
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Women's Residence Hall.....	1900 F St	766
Dramatic Activities, E. C. Ferero, Managing Director.....	Art 1st fl	472
Economics Department, J. W. Skinner, Chairman.....	Mon 401	235
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Education Department and School:		
Hamblin, F. N., Dean.....	D-300	672
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Root, B. S., Assistant Dean.....	D-300	672
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Engineering and Applied Science, School of:		
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Grisamore, N. T., Assistant Dean (Research).....	Tompkins 104	249
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Dining Room	714 21st St	368
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General Studies, College of:		
Admissions	Bacon 103	540
Angel, G. L., Dean.....	F-20	509, 701
Assistant Deans:		
Brown, J. G. (Administration).....	F-30	701
Eller, R. W. (Special Projects).....	F-25	701
Simons, R. B. (Academic Affairs).....	F-15	701
Field Representatives:		
Bennett, J. L.....	F-32	701
Charles, J. W.....	F-23	701
Jessup, M. H.....	F-24	701
Powers, M. J.....	F-13	701
Rose, A. G.....	F-34	701
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Staff Assistants and Associates:		
Burns, R. C. (Conference Seminars).....	F-27	701
Burton, J. R. (Student Records).....	F-11	701
Clarkson, Elizabeth (Registration Processing).....	F-22	701
McKay, Olive (Continuing Education).....	F-28	701
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War College Programs, C. E. Galbreath, Coordinator.....	F-36	701
Geography and Regional Science Department, J. T. Davis, Acting Chairman.....	I-203	287, 298
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Government, Business, and International Affairs, School of:		
Woodruff, A. M., Dean (to Feb 1, 1965).....	Govt 204	661, 607
Dockeray, J. C., Assistant Dean (Programs in Government and Business).....	Govt 201	512, 539
Stout, H. M., Assistant Dean (Programs in International Affairs)	Govt 204	661, 607
Williams, L. W., Assistant Dean.....	Govt 204	661, 607
Graduate Council, A. E. Burns, Dean.....	Bacon 201	362, 744
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Health Care Administration, F. H. Gibbs, Coordinator.....	Bldg EE	574, 676
Health Services:		
Castell, R. B., Director.....	Mayflower Hotel	DI 7-3000
Pugh, H. L., University Physician.....	P-10	365, 524
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Law:		
Administrative Offices.....	Sto 11	327, 329, 331, 332
National Law Center:		
Nutting, C. B., Administrator.....	Bacon 305	576
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Kramer, R., Dean.....	Sto 14	331
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